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Original Articles.

CONSUMPTION: AN INDOOR DISEASE.¹

BY SAMUEL W. ABBOTT, M.D., BOSTON.

"How the people live is one of the most important questions that can be considered, and how — of what causes and at what ages — they die is scarcely of less account; for it is the complement of the primary question, teaching men how to live a longer, healthier and happier life."

These words were written nearly a half-century ago, by one of the foremost medical men of his day, Dr. William Farr, and have lost none of their meaning as applied to our own times.

A careful study of the different classes and species of infections reveals their true character as widely diverse, as much so in fact as the different classes of plants which make up the flora of a country, or the different forms of animal life which constitute its fauna. The active agents of infection appear to be only lower forms of life. The infections of animals, the infections of plants, the infections of mankind, have their natural habitats or soils for growth, and are also capable, in many instances, of culture or growth upon other soils.

There is much yet to be learned in regard to the habits or life of the different infections — much that will aid us in the future in successfully combating them.

No form of infection has been studied with greater interest, during the past quarter of a century, than that of tuberculosis. Prominent among the characteristics of this disease, which have been shown by years of observation, by experiment and careful study, are the following:

I. WITHIN THE BODY.

- (a) A slow and indefinite period of incubation.
- (b) In the majority of cases it appears as a disease of the lungs.
- (c) Selection of the youthful or early adult period of life (fifteen to thirty years).
- (d) It exists as a disease of certain other mammals as well as of man.
- (e) Mode of entrance into the body: (1) by the lungs; (2) by the alimentary canal; (3) by inoculation through the skin, in the foregoing order of frequency.

II. OUTSIDE THE BODY.

The infection leaves the body mainly in sputum coughed up from the lungs, but may occur in secretions or excretions from other diseased organs.

The infectious sputum is mainly that of the lungs, and not that which is simply discharged from the mouth as saliva; nor does it usually exist in vomitus.

The tuberculous sputum specially dangerous is dry.

The tuberculous sputum of enclosed air-spaces constitutes a far greater danger than that which remains out-of-doors.

The foregoing conditions may be considered as mainly accounting for the fact that consumption bears the characteristics of an indoor infection. It may be stated, however, almost as an axiom, that this characteristic also applies to nearly all the infectious diseases in a measure, but in a more limited sense to whooping-cough and still more to influenza. Given a definite number of healthy persons, say 1,000, having identical conditions as to age, sex and race, and let them be divided equally, 500 to lead an indoor life, and the other half an outdoor life (for example, like fisher-

men); let an equal quantity of infectious material, for example, that of diphtheria, scarlet fever, or the dried sputum of consumptives, be distributed equally among the two groups, and it may be laid down almost as an axiom, that the indoor group will become infected in far greater numbers than the outdoor group.

The reasons are plain: The persons composing the indoor group are aggregated more closely together and the air-supply is limited in proportion to the efficiency of the ventilation, and these two conditions, the density of aggregation (as shown by Dr. Farr's early reports) and the limitation of the air-supply, or, in other words, the ventilation, favor the spread of infection.

The preservation of the vitality of infectious material is also secured by the protection afforded by enclosed areas, either in rooms, workshops, railway cars, staterooms, cabins, or other enclosed spaces. Hence the usefulness of measures adopted by boards of health, in the shape of ordinances forbidding the practice of spitting upon the floors of such places.

On the other hand, the outdoor group is subjected to similar influences only in an infinitesimal degree. Ventilation is not needed, since the outdoor air affords the necessary protection by its enormous diluting power. The density of aggregation is greatly diminished and disease germs lose their vitality under the destructive influences of the wind, the sun and the rain. The chief danger here arises from the conveyance of such material indoors upon boots, shoes and dress skirts.²

Two persons standing or working at a distance from each other of five or ten feet are far more liable to transmit and to receive infection from each other when indoors than in the outdoor air.

In consequence of the peculiar methods under which tuberculosis is spread from one person to another, from the sick to the well, it is, therefore, desirable that the most careful attention should be bestowed upon the condition of those persons who are compelled either to live or to work indoors, and that a due measure of the work of boards of health with reference to the restriction of the spread of this disease should be expended in this direction. The danger from the consumption of milk and meat of tuberculous animals has been investigated, and thus far, while the danger to be feared from this cause may be said to have passed from the region of possibility to that of probability, that which may be feared from the diffusion of sputum in enclosed areas or spaces may be said to amount to a certainty.

Very much of the investigations now being conducted in other countries in regard to industrial hygiene depends upon this principle of indoor infection. Unfortunately very little has yet been done in this direction in America. (The few papers in the *Transactions* of this Association, especially the prize essay of Mr. Ireland, should be supplemented by some active operations upon our part as an organized association working for the public welfare and having the good of all classes in view.)

The conditions to which I have alluded being known and recognized, we are prepared for the statement of Cornet that open-air infection from tuberculosis may practically be disregarded, since no positive evidence has ever been presented to the effect that human

¹ Read at meeting of American Public Health Association, Philadelphia, Pa., October 27, 1897.

² See Cornet's experiments and those of W. Kruse (*Über die hygienische Bedeutung des Lichtes*), in Koch's *Zeitschrift f. Hygiene*; v, xviii and xix, p. 313.

beings ever contract tuberculosis in the open air. The results of observation and experiment both tend to show that the far greater danger lies in the direction of indoor infection.

Unfortunately, when the term "infectious" or "contagious" is applied to a disease, there is no discrimination in the minds of the laity, and such disease is at once classed with small-pox, measles and scarlet fever; but infection has its limitations and degrees and those of tubercular infection are well defined and are bounded by narrow limits. Dr. Russell in his excellent pamphlet on the "Prevention of Tuberculosis" quotes the following statement of the French League for the Prevention of Pulmonary Phthisis:

"We know further that the consumptive is not in the least dangerous by contact or proximity, that it is neither his body nor his breath which is hurtful, and that we can chat with him for hours, live with him for years, and even sleep in his room and give him the most constant care, without running any serious risk, *provided we take certain precautions*, the chief of which is to collect his expectoration, and not to delay the destruction of his spittle until it becomes dry, and is disseminated as dust into the atmosphere."

And very wisely adds—

"This position is logical and unassailable. If you accept the doctrine as sound, the practice must be conceded as sufficient. Let there be spittoons handy for everybody; don't put your spit in the way of drying and becoming dust; don't anywhere stir up the dust in inclosed places. The remedy is so commonplace that, after reading all that has been written and spoken, and proclaimed and enjoined, when we look at our notes and find nothing but sputum, spittoons and dust, we are apt to show a little temper, like Naaman when he expected the prophet to hold a solemn function over his leprosy, and he merely told him to go and wash himself. No doubt, the very simplicity of the prescription will constitute the greatest difficulty in the way of its acceptance and observance. . . . Only a clear apprehension of, and firm belief in, the doctrine that practically consumption is communicable through dried expectoration, and nothing else, will save the practice from ridicule."

To say, then, that consumption is not infectious is to contradict the highest authorities, who appear to have settled this question both by experiments upon the lower animals and by observation, both with reference to men and the lower animals.

I shall now call your attention to some of the proofs of the proposition which forms the title of this paper, that consumption is an indoor disease:

- (1) The evidence shown by occupations.
- (2) That which is presented by the conditions of age and sex.

I. AS TO THE EVIDENCE PRESENTED BY OBSERVATIONS UPON THE MORTALITY IN DIFFERENT OCCUPATIONS.

The best information upon this point is that which has been presented by Dr. W. Ogle, chief medical officer in charge of the English Registration Returns.

In a paper upon the mortality in different occupations presented at the International Congress of Hygiene in 1891, Dr. Ogle presented the following statement and figures concerning them so far as consumption is concerned:

"The difference between an outdoor life in fresh

country air and an indoor life in a town is readily shown by comparing the mortality of farmers, gardeners and fishermen with that of shopkeepers; or, going a step further in the scale of vitiated air, with that of tailors, printers, book-binders and hatters, all of whom habitually work in overheated and under-ventilated rooms."

In this table the author confines the figures to phthisis and diseases of the organs of respiration, although the danger is not limited entirely to these organs. Fishermen appear at the top of the list with the lowest mortality from phthisis and diseases of the respiratory organs.

TABLE I.

COMPARATIVE MORTALITY FROM PHTHISIS AND LUNG DISEASES OF MEN (FORTY-FIVE TO SIXTY-FIVE YEARS OF AGE) WORKING IN PURE AND IN VITIATED AIR.

Air.	Occupation.	Phthisis.	Diseases of respiratory organs.	Phthisis and diseases of respiratory organs.
Pure air	Fishermen	55	45	100
	Farmers	52	50	102
	Gardeners [ers]	61	56	117
	Agricultural labor-	62	79	141
Confined air	Grocers	84	59	143
	Drapers	152	65	217
Highly vitiated air.	Tailors	144	94	238
	Printers.	233	84	317

In the foregoing table, Dr. Ogle has presented a few occupations as illustrations of his proposition, to show the difference between the mortality of persons of different occupations working in pure and in vitiated air, or what amounts to the same, outdoor air and indoor air.

In order to present the results of observation as clearly as possible, the usual figures representing the death-rates of the living population at certain ages and of certain occupations are reduced to a standard of 100 for that occupation which presents the lowest mortality from phthisis and diseases of the respiratory organs, and that is the occupation of the fisherman—a typical out-of-door mode of life. Next in order come farmers, gardeners and agricultural laborers; and then a group of indoor occupations in which the indoor space is not seriously limited; and, finally, a group of occupations in which persons work in small and poorly ventilated spaces. That the careless distribution of sputum upon the floors of workshops has had much influence upon the phthisis mortality of such workmen is shown by careful observation.³

Added to the harmful effect of overcrowding in small apartments and workshops, and of inadequate ventilation, is the presence of the dust arising from the methods of conducting certain occupations, and especially of such forms of dust as are sharp and irritating. That such occupations are especially attended by high phthisis mortality is abundantly shown by further tables presented by Dr. Ogle in the paper already alluded to, as well as by other observers.⁴

³ See statement by Dr. Marfan in Rev. d'Hygiene, 1890, vol. xii, p. 66.

⁴ See also the recent monograph of Dr. Sommerfeld, entitled Die Schwindsucht der Arbeiter, Berlin, 1896.

II. THE PROOFS AFFORDED BY THE RECORDS OF MORTALITY BY SEX AND AGE-PERIODS.

Accurate records of occupation mortality extending over long periods of time are not to be had in this country; but there are some quite good statistics of age and sex for different diseases, and there are certain peculiarities of these figures to which I desire to call your attention. The figures which I have selected for examination are those of my own State (Massachusetts) for the nine years, 1887-95. They comprise over 50,000 deaths registered as from pulmonary phthisis in this period, and may be considered as fairly accurate.

TABLE II.

DEATHS AND DEATH-RATES FROM PHTHISIS AT DIFFERENT AGES, MASSACHUSETTS, NINE YEARS, 1887-95.

(Compiled from a total of 50,583 deaths from phthisis in Massachusetts.)

Age Periods.	Deaths from Phthisis.		Death-rates per 10,000 living.		Deaths of females to each 100 males in equal numbers living.
	Males.	Females.	Males.	Females.	
0-2	868	806	26.8*	25.2*	93
2-3	129	127	6.1	6.1	100
3-5	118	150	3.0	3.9	130
5-10	197	266	2.2	3.0	136
10-15	248	737	2.8	8.6	301
15-20	1,804	2,969	19.3	29.8	154
20-30	7,067	8,701	35.4	39.7	112
30-40	5,466	5,611	36.1	35.9	99
40-50	3,363	3,113	30.4	26.8	88
50-60	2,333	1,757	30.9	20.7	67
60-70	1,512	1,295	31.4	23.7	76
Over 70	915	1,001	31.3	26.9	86
	24,020	26,563	24.5	25.6	105

* Corrected figures for ages 0-2 years: Males, 21.0; females, 19.5.

The correction for the first two years of life is made necessary in consequence of the defective character of the census enumeration of children at that age of life.

An examination of this table reveals some remarkable facts upon careful analysis. It will be noticed that the age-periods are presented in a peculiar manner. First, the first years of life (0-2) are presented as one group; secondly, the third year is presented by itself; then come the fourth and fifth years in another two-year group; then the usual five-year groups from five years up to twenty; and then the remainder of life in ten-year groups.

The object in presenting the figures in this manner is to show that at the third year of life the death-rate of boys and girls from phthisis is equal.

In the first ten years of life, the phthisis death-rate of boys is slightly higher than that of girls of the same age, the ratio being 93 deaths of girls to 100 of boys.

In the third year of life, the phthisis death-rate has become equal in the two sexes (100 females to 100 males in equal numbers living). In the next two years, the female death-rate from phthisis has passed that of males, and then is equivalent to 130 deaths of females to 100 of males in equal numbers living. At the period of childhood (5-10 years) the increase of the female over the male death-rate has continued, and

equals 186 females to 100 males. In the next period (10-15) it has reached the very great difference of 301 females to 100 males. In the period 15-20 years, the female death-rate bears the relation to the male of 154 to 100; and in the next period (20-30) it is as 112 to 100. This rapid decline in the female death-rate continues from a death-rate of 39.7 per 10,000 living females, in the period 20-30 years, down to that of 20.7 per 10,000 in the period 50-60 years, at which period it bears the relation to the male death-rate of 67 females to 100 males.

The male death-rate, which has reached a climax of 36.1 per 10,000 in the age-period 30-40 years, declined to 30.4 in the next period, and remained nearly constant from that time throughout the remainder of life.

The points in this table to which I desire to call attention are the following:

In the first two years of life, the death-rate of boys from phthisis is slightly greater than that of girls; but in the third year of life the death-rate is equal. In the fourth year of life the difference in the phthisis death-rate of the sexes is reversed, and that of girls is the greater; and for the two years, 3-5, this excess among girls amounts to 30 per cent. In the five-year period (5-10 years) this excess has increased slightly to 36 per cent.; but in the next period (10-15 years) it suddenly makes a bound and rises to triple the male death-rate. So far as can be learned, the greatest relative difference in the phthisis death-rate of the sexes occurs between the twelfth and thirteenth years of life. The phthisis death-rate of each sex then increases rapidly to its maximum in males in the age-period (30-40), and in females in the period (20-30). The highest death-rate of males from this cause probably occurs at a little over thirty years, and that of females at a little less than thirty years.

A careful examination of English figures for phthisis reveals a general coincidence in almost every particular except that the difference in the death-rates of the sexes at early ages is not so great as in the Massachusetts figures, the female rate at ages 10-15 amounting to double that of the male instead of treble. Again, the period at which the female death-rate begins to exceed that of the male is not until the fifth year of life instead of the fourth, as in Massachusetts. What is the true explanation of these differences in the death-rates of the sexes from phthisis? I shall only offer a hypothetical explanation.

The lessened death-rate of females, as compared with males in the later age-periods (forty years and onward), may be explained (provided the doctrine of immunity or that of insusceptibility applies to phthisis) upon the supposition that the majority of susceptible females have been removed from the population by death in the early age-periods, leaving an excess of susceptible males. But this does not explain the excess of the female death-rate from phthisis in the early ages, after the second year of life. I venture, therefore, to offer the following:

Upon the theory that the infection of tuberculosis is mainly an indoor infection. At birth and from that time, throughout the first three years of life, the death-rate of the sexes from phthisis is very nearly equal. During these three years the relative amount of time spent within doors is about the same for both sexes, but in the fourth year of life, as an average, boys begin to spend more time out of doors than girls,

and the relative amount of difference in time so spent continues to increase from that time onward. It cannot be urged that the period of puberty in girls has an effect in causing this difference, since the difference begins at a much earlier time of life and reaches its climax before that age in females. The delay in the onset of this increase in females in England and the lessened difference at the age 10-15 years may, perhaps, be accounted for by climatic differences, that is, a generally milder climate in the British islands.

A singular instance of the hold which popular fallacy in regard to infection gains upon the laity is presented in the results of a legislative inquiry which occurred in Massachusetts last winter, but which, fortunately, proved a failure.⁵

The underlying principle which could have any possible weight in this investigation was the possible danger of the spread of tuberculosis infection from a hospital inhabited by consumptives to the surrounding neighborhood, or from its inmates while walking about the grounds or the neighboring streets; or, in other words, the danger of outdoor infection. Since such danger was neither proven, nor was even a strong probability thereof shown to exist, the proposed measure utterly failed.

Once let the idea of infection gain a foothold in the popular mind, and the belief spreads rapidly and often to such an extent as to cause harm instead of good. The method and degree of infection are all of no account so long as these words "infectious or contagious" have become impressed upon the mind of the community.

Modern medicine has received no greater impetus than that which has been derived from the rapid advances afforded by bacteriological research. So great, and so valuable have these results proved, that the death-rate from some of the worst forms of infection has begun to lessen with greater rapidity than before, under the influence of methods which had their origin in the laboratory of the scientist.

Notwithstanding this fact, however, it cannot be denied that the most reliable conclusions in regard to the true characteristics of infectious diseases must be derived not only from the laboratory but from the observations of the physician in his daily rounds of practice, together with a study of mankind in his relation to all outward circumstances which influence his condition in life, such as those of sex, age and occupation. In other words, the results of laboratory investigation, clinical observation, and the broad and general study of the natural history of disease taken together constitute a better means of deciding doubtful questions in regard to infection than either of these methods taken separately.

In conclusion, then, it must be admitted, that tuberculosis is an infectious disease. Its character is too well defined, both by observation and by experiment, to admit a reasonable doubt. The active principle of infection, the bacillus of tuberculosis is recognizable; it is capable of isolation from the body, of cultivation, and of inoculation into the lower animals. But, practically, the exact mode of infection, when applied to the daily intercourse of human beings, is extremely limited, and no evidence has ever been presented which tends to show that such infection ever occurs by exposure in the open air, either by the breath of con-

sumptives or by the distribution of sputum upon the surface of the soil. On the other hand, abundant evidence shows that such infection is of very common occurrence from indoor exposure to the distribution of sputum deposited upon floors and dried under favorable circumstances.

By this I do not mean to infer that the outdoor free distribution of the sputum of consumptives should be encouraged or allowed, but should be prevented, on the general principle that all infectious material constitutes a greater or less danger, and not because any serious danger from such outdoor distribution has actually been shown to exist when compared with indoor distribution of sputum.

SOME CONSIDERATIONS OF TUBERCULOSIS.

BY J. ARTHUR GAGE, A.M., M.D., LOWELL, MASS.

FREQUENCY.

TWO-SEVENTHS, or nearly 80 per cent., of civilized people are said to have tuberculosis. If this is true, then Lowell has 26,000 people afflicted with tuberculosis. The figures seem appalling. What is the evidence? In 1,000 autopsies by Biggs of New York, 275 or 27.5 per cent. had lesions of tuberculosis. If we consult our city mortality tables we find that for the last thirty years between 15 per cent. and 20 per cent. of all deaths are from the tuberculoses, and if we consider the cases of tuberculosis not only of the lungs, but of bones, skin, glands and other organs that we see maintaining a degree of health consistent with life, these figures do not seem extravagant. But if we look at the mortality charts we notice a curious fact. In 1884, the curve representing the per cent. of deaths from tuberculosis to the total deaths went for the first time below 15 per cent. and has steadily declined since, until it has reached 10 per cent. In the same year the curve representing a corresponding per cent. of deaths of children under five years began steadily to rise from 36 per cent. and has gradually reached a level of 43 per cent. In general this curve is influenced by the deaths from zymotic and diarrheal diseases (the causes of death in most children), but if we take the year 1892, when there were few deaths from all zymotic diseases and when the deaths from diarrheal diseases were the average for ten years, that is when we should expect a low death-rate among children, we find that 42 per cent., nearly the highest for ten years, of deaths were under five years. The deaths from diarrheal diseases was 12 per cent., and from zymotics 21 per cent., making a total of 33 per cent. So that we have 9 per cent. of the total deaths among children under five years to account for. What are the causes given for these deaths?

If we look at the last bulletin, we find that of 83 deaths under five years, 19 are classified as infantile debility and inanition. (Of course the responsibility for this does not rest upon the Board of Health.) In other words, a great many deaths among children really have no pathological cause of death given. Yet we know that during the first two years of life there is a constant increase in tuberculous disease, which then falls only to rise again at puberty.

To recapitulate: When we consider that the death-

⁵ The circumstances attending this investigation, having been already presented in the Journal, it is unnecessary to repeat them here.

¹ Read before North Middlesex District Medical Society, October 27, 1897.

rate under five years of age is higher than the average for thirty years, and out of proportion to the death-rate from zymotic and diarrheal diseases; that the death-rate from tuberculosis is lower than ever before; and that there are many unclassified deaths at an age when we know tuberculosis to be rife; I believe the inference is warranted that many of these are due to tuberculosis, and that the death-rate from that disease should be higher than it is.

Since I began private practice I have been impressed with the great frequency with which signs of solidification have appeared in some portion of the lungs in young people under twenty years of age under varying conditions, and these conditions have often seemed inconsistent with the supposition that, at the particular time when the signs were noticed, the patient was infected with tubercle bacilli. A few cases will illustrate:

(1) Boy, fourteen, doubtful family history, convalescing from typhoid, has suddenly appear all the signs of solidification at right apex, with fine and coarse moist râles. With forced feeding the râles disappear, and the boy resumes good health.

(2) Sister of above, eighteen years old, after over-work catches cold, and has same signs at right apex; recovers health, but never gets back to former weight.

(3) Girl, thirteen years old, has a cold, with cough and localized signs at right apex. Symptoms subside under treatment, and girl recovers health and weight.

It is interesting to note that the girl of eighteen does not regain weight, while the girl of thirteen does, and also that no one of the three lived with people in active consumption.

(4) A girl of seventeen "feels tired," and does not want to go to school or work; one brother died at twenty-one of phthisis. The father and mother are healthy, but have a tubercular family history. No signs of active disease exist in the lungs, but there are prolonged expiratory murmur and increased voice at right apex. Later, active symptoms develop. One would naturally think of the connection with the brother's case; but the development was two years later, and it is significant that another brother seven years old had "lung fever" years before either was sick. I frequently see the signs of local disease of lungs in young children under two years, but will return to this subject later.

It is not necessary to multiply cases, but I want to call attention to the frequency of localized inflammations of the lung in children, particularly about puberty. These patients, so far as we can see, are not associated with active consumption in their daily life, nor can they be said to be especially exposed at the time their symptoms appear. It is evident that many of these cases will be seen with lung trouble later in life, and the attack then will be the lighting up of the old lesion; such is likely to happen about the age of twenty-one or twenty-two; and the query comes, If these cases carried the bacillus in their bodies from thirteen years to twenty-one, when did they get it? May they not have had it in the earliest period of life, under two years, when we know so many children have tuberculosis? If they did acquire the disease in a latent form at so early a stage, how did they get it, and what are the sources of contagion?

METHODS OF INFECTION.

Over two years ago, in a discussion before the Massachusetts Association of Boards of Health in Boston, I

reported some cases of inflammation of the lung, probably tubercular, occurring in children, in the early months of life when the child seemed to be free from danger of infection, that suggested to my mind the possibility of the inheritance of the bacillus. This suggestion was vigorously opposed, and this opposition has served as a stimulus to seek further evidence. Let us look at a few cases:

CASE I. A boy is born to parents neither of whom have had active tuberculosis. One family (mother's) is tubercular, and the mother herself had suspicious signs at right apex of some solidification, but she does not cough or expectorate. The baby is fed on sterile milk from birth. The house is new; no consumptive lives in house. At four months of age he has an inflammation of posterior lobe of one lung that lasts several weeks and leaves him very weak; no sputum examination could be made. For two years he is pale and under weight; has "wheezy" breathing and some cough, and moist râles can be heard at times over the old spot of inflammation. Slowly he builds up on cod-liver oil and fresh air.

CASE II. A boy is born to parents both of whom are in vigorous health, full weight, and free from any history of tuberculous disease. The mother's lungs are without even suspicious signs. Father's family is tubercular. The baby is nursed by mother. No consumptives have lived in house, so far as known, in recent years. At six months of age the boy begins to lose flesh and strength, and become pale: there are no other symptoms. His digestion is good, and he is given juice of beef and tonics, with no improvement. At nine months of age a consultation is held; and after thorough physical examination it is agreed that there are signs of solidification of one base. Under forced feeding with Pasteurized milk, beef-juice and cod-liver oil (nursing is stopped) he gains. The stomach digests all he gets, but he still is very pale.

These taken as two sample cases, with many other cases of tuberculosis of lungs, meninges and bones in the first year of life, bring us to the question, Can it be that these cases inherit the bacillus? What is the clinical evidence? If we glance at the literature of the subject, we shall find that since the time of Hippocrates physicians have believed that people inherited a "consumptive tendency"; and I doubt not but that all of you to-day question a patient with pulmonary symptoms about his family history, not merely of those he lives with, but as to his grandparents, uncles and aunts, and collateral branches. Now, under this name "tendency" we have merely covered up our ignorance. For whether we interpreted it to mean lowered vitality or decreased nutrition or a mysterious property called "susceptibility," we were merely trying to explain the fact that "consumption seems to run in families." Do not understand me as saying that a child of a consumptive may not be less resistant to acquired tubercle bacilli than children of healthy parents; but it may be fairly questioned why they should be more susceptible than children of parents with other debilitating diseases. How, then, shall we explain this "susceptibility"? Can we say with Cohnheim, that "the phthisical habit is not an indication of a tendency to, but actually of the existence of tuberculosis"?

The question divides itself into three:

(1) Can the bacillus be transmitted to the ovum by the mother or the sperm of father?

(2) To fetus by mother?

(3) How often does this occur?

In answer to the first two questions, we know that micro-organisms can be transmitted from mother to child in utero. How this is done through the placenta is foreign to our present discussion. In the case of syphilis (presumably a germ disease) we know that it can be transmitted through the ovum and sperm direct, thus coming from both parents. But it has been shown (quoted from Dr. W. H. Welch, of Johns Hopkins) that the bacilli of chicken cholera, anthrax and pyogenic micrococci pass through the placenta of animals. In man we know that the fetus in utero has been infected with small-pox, measles, scarlet fever, relapsing fever, typhoid, anthrax and other diseases.

In regard to tuberculosis, Welch has the following to say: "Developed tuberculosis in the new-born infant is extremely rare, although it has been observed, but this rarity does not prove that tubercle bacilli may not often be transmitted from mother to fetus. It takes time and susceptibility for tubercle bacilli to produce recognizable lesions. Tubercle bacilli without developed tuberculosis have been repeatedly found in the fetus of tuberculous mothers. Birch-Hirschfeld detected in a seven-months' fetus, removed by Cæsarean section from a mother with acute miliary tuberculosis, tubercle bacilli, both by microscopical examination and by inoculation of guinea-pigs. There were no tuberculous lesions in the fetus. The failure to find tubercle bacilli in a large number of similar cases can hardly be regarded as proof of their absence, when one considers the difficulty of demonstrating tubercle bacilli in small numbers irregularly distributed through a large mass, without any lesion to indicate where they are most likely to be found. Gartner finds that the transmission of tubercle bacilli from mother to fetus is common in the experimental tuberculosis of mice, rabbits and canary birds.

"There is reason to believe that the embryo offers great resistance to the growth of tubercle bacilli. Maffucci has found that tubercle bacilli inoculated into hen's eggs before incubation remained quiescent during the period of embryonic development, but caused the death of most of the chicks from tuberculosis in three weeks to four and a half months after birth. We have evidence that in human beings living and virulent tubercle bacilli may remain latent in the body a long time. As already mentioned, the chances of penetration of bacilli into the fetus appear to be more favorable during the later period of pregnancy than earlier. The frequency of tuberculosis increases very rapidly with each succeeding week after birth, until during the second half of the first year and during the second year of life fatal tuberculosis is very common, and then becomes less frequent until after puberty. Infantile tuberculosis is far more commonly situated in internal organs, such as the lymphatic glands, meninges, bones and joints, without tuberculous lesion on any exposed surface of the body, than is tuberculosis of adults."

Thus it is pretty conclusively shown that the mother can transmit the bacillus to offspring. What about the father? Osler says, "There is no evidence to show that a tuberculous father can transmit the disease." Let us consider this question further. In syphilis we know that the semen can transmit a constitutional disease to the offspring. Again, we know

that the human semen contains under certain conditions the tubercle bacilli. Now, let us turn for a moment to animals for additional light.

In a most valuable and interesting paper by Dr. G. H. Bailey, State Veterinarian of Maine (which I wish I had time to quote fully) the following facts are brought out: 14 bull calves a few days old were sold from an infected herd to go to different parts of the State. Twelve of the 14 were later found diseased, and their calves out of sound cows were also found diseased. He believes they were born with the disease, and transmitted it directly to their offspring, as there had never previously been any tuberculosis on the farms to which they carried the disease.

A second case was that of a breeder who bought an infected bull and served 10 cows, all the calves of these 10 cows had to be killed for tuberculosis.

In a third case where an infected bull served seven cows, all their calves were tuberculous, and one tuberculous calf came from a mother free from the disease. Hence, the disease *could* be traced directly from the bull.

He quotes as follows:

Dr. Theobald Smith of Massachusetts State Board of Health says: "(1) The tubercle bacillus may pass in the semen of the male and infect the ovum directly. (2) The ovum may be infected by disease of surrounding structures (peritoneum, ovaries, Fallopian tubes) in the female. (3) The fetus may be infected by the passage of tubercle bacilli from the maternal placenta into the fetal circulation. The infection through the placenta is probably the most frequent cause of congenital tuberculosis. It may take place when, in consequence of generalized tuberculosis of the mother, tubercle bacilli are in the circulation and become lodged in the placenta, whence through some ruptured vessel, they may pass into the blood of the fetus."

From *Oest Monatschrift* he quotes as follows: "The presence of microbes in the spermatic fluid, however, is of far greater importance, as it throws a new light upon the transfer of the microbe from father to child, not only in tuberculosis but in syphilis."

From Dr. Michenor, Chief Inspector of the Bureau of Animal Industry, Washington: "This infected bull is an unsafe sire, and is almost certain to transmit the disease."

The Maine State Board of Health says: "Tuberculosis in cattle is a hereditary disease."

The Brussels Congress, 1888, says: "The disease (tuberculosis) is transmitted by heredity."

The New York State Commission on Tuberculosis in cattle says: "Tuberculosis is under certain conditions congenital."

Many other quotations might be given; but enough has been heard to show that our friends the veterinarians believe that the disease is *frequently* transmitted from father to offspring.

Believing, as I do, in the universality of law, I think that if a bull can transmit tuberculosis to his offspring, a man can do the same thing.

We now come to the question, How often does this happen in man? And I wish to say here, that I believe the answer to this question must rest upon most careful work and observation in the future, but that its importance cannot be overestimated. We can only at present consider some of the evidence that favors it. On the part of the child the fact that

¹ Dennis's Surgery, vol. 1, p. 307.

so many children have tuberculosis during the first two years of life would point to inheritance, where other sources of contagion have been eliminated; but if it can be shown that often tuberculosis in children is latent and is really the focus of later outbreaks, then I should consider this to point rather towards inheritance, because I should expect acquired tuberculosis to develop a lesion rather than to remain latent.

This tendency of acquired tuberculosis to develop a lesion was well illustrated in case of a young man of good family history and superb physique who, after engagement to a woman with apex disease, showed during an attack of persistent dry cough a spot about the size of a dollar in supra spinous fossa that gave all the classical signs of tuberculosis.

In a paper by Dr. Donaldson, President of the American Climatological Association, read in 1887, he says: "The greatest objection to the theory of inherited bacilli is that it is necessary to assume a latency of the disease during early life."

But we all know that the disease has the property of quiescence during all periods of life and for varying lengths of time, and I cannot see that latency means anything more than the property of not producing evident lesions, or giving rise to active symptoms. When we see a child with tuberculosis at one year maintaining good health for years, or a boy at fourteen years with undoubted tuberculosis growing up without active disease, I call that latency. The experiment of injecting tubercle bacilli into chicken's eggs and not getting the disease (manifested by tangible lesions) until three to fourteen weeks of age is strong proof of latency; while in cattle, the evidence is all in favor of the latency of tuberculosis.

Dr. F. W. White's experiments with tuberculin bear upon this point. About 20 per cent. of cases injected with tuberculin, where no physical evidence of tuberculosis could be found, reacted. This was noted as a failure of tuberculin. When we consider the frequency of tuberculosis and the fact that no such discrepancy is found in cattle, it seems to me fully as sound to assume that that per cent. of patients had latent tuberculosis that presented no symptoms discoverable on physical examination.

Furthermore, the lesions of tuberculosis found at autopsy, that were quiescent, all point the same way. Consequently, if the difficulty of explaining latency in tuberculosis is the great objection to the theory of frequent inheritance of tuberculosis, then that objection seems to me to be a slight one.

If we look at the question from the standpoint of the parents, it seems probable that a mother with tuberculosis of the ovary, or a father with bacilli in sperm, would be in a favorable condition to transmit the disease; or a woman with multiple lesions of tuberculosis over the body, and the bacilli carried in the blood current, if she should become pregnant, would be very likely to transmit the bacilli, particularly if there were any break in the placental membrane.

In conclusion, it seems to me safe to say that the transmission of bacilli from parent to offspring is (upon the evidence) much more frequent than has been believed. Can we say that predisposition means bacilli in the body? I cannot better reply than by quoting Ruhle before German Congress, 1887:

"If the inheritance of human consumption be true, and we believe it; if the bacilli represent the infectious

material of tuberculosis, and we entertain no doubt of this, then both facts must harmonize with each other. . . . Whether it is the tubercle parasite itself which is transmitted, or a certain constitution of nutritive substratum on which the universally present germ may lodge, we can only know by further investigation."

INFECTION BY MILK.

Another mode of infection that has been underestimated is through milk, both bovine and human. The following cases furnish evidence on that point.

CASE I. This case has been reported in print, but I will repeat briefly. Baby under one year. Family history free from tuberculosis. Parents and older sister in perfect health. House new. Baby nursed to nine months, and then was fed on one cow's milk. Child died of tubercular meningitis. Cow was examined and appeared healthy. Cow's milk injected into guinea-pigs: killed in six to eight weeks with typical tuberculosis. No disease of udder could be found.

CASE II. Girl, eighteen years old, good family history; came for general tuberculosis of glands of neck. She had had the disease about a year. She had drank milk regularly. During the year one of the family cows was killed for tuberculosis.

CASE III. A man of thirty-two; good family history; always healthy; wife and children healthy; living in a new house. In September had an attack of renal colic. After recovery he went to work on a farm for three weeks, and during that time drank a large quantity of milk daily, then returned to his work as motorman. At this time he noticed a small nodule, like a pea, under the right jaw, which gradually grew larger; and in the spring I removed the right submaxillary gland and some lymphatics that were tuberculous. In the intervening December a cow was killed for tuberculosis on the farm where he drank the milk.

CASE IV. A young man of twenty-one, family history good (sister looks tuberculous), was seen with upper half of left lung showing signs of old tuberculous disease and the lower half showing signs of recent invasion. Temperature 103°; pulse 120, with night-sweats; hemorrhage and loss of flesh; abundant tubercle bacilli in sputum. I ordered seven hours a day of sunlight and rest in easy chair on piazza, Pasteurized milk, and little morphia-sulphate for cough. In one week the temperature became normal in the morning and 100° at night, and he gained one and a half pounds; cough improved, and night-sweats nearly disappeared. He had had cough for a long time, but became worse this summer in spite of a vacation, when he gained in weight. His sister had a young baby during the summer, and the family milk-supply was changed for one cow's milk, which made the baby "so sick that they had to stop feeding it on the milk." He usually drank a glass before going to bed. Soon after the baby's sickness the cow was killed for tuberculosis.

I might give more such cases, and the literature of the subject is full of them. Probably 20 per cent. of the cows in Eastern Massachusetts are tuberculous, and about one-half of these have the bacilli in their milk, whether there is disease of the udders or not. Their milk furnishes an excellent nutritive medium to convey a virulent germ to the consumer, and the mixing of the milk but infects the whole quantity, while it dilutes the strength. This makes the danger from milk a real one of much greater magnitude than is generally recognized; and that the danger is not

merely for infants and invalids, but that healthy individuals can be infected is shown by the cases quoted.

In the case of children and typhoid patients, I believe the danger is very great, because they drink large quantities of milk with no guarantee of its purity, and are in a condition of feeble resistance. There is, of course, but one remedy at present, and that is, to keep all milk at a temperature of 165° F. for thirty minutes before using.

I will not drink raw milk myself, and I have the family supply Pasteurized daily. The danger from butter is a real one.

The danger from nursing a tuberculous mother is so well recognized and the remedy is so obvious that I will not consider this source further.

INFECTION BY AIR.

The third source of infection, namely, from the air, is so well recognized that I shall only speak of a few of its limitations. It seems to me that this mode of infection bears more than its share of responsibility at present. In spite of Cornet's statistics from hospitals and cloisters and the conclusions of the New York bacteriologists I cannot feel that efforts to free the air from bacilli are going to make such an amazing difference in the amount of tuberculosis. I am well aware that the bacillus has been found in outside air, and the air and dust of rooms; that it has been traced into the nostrils of human beings. But the sunlight and oxygen and dilution must minimize the danger outside, and until there is conclusive evidence that the large percentage of cases is due to breathing the infected air indoors to the exclusion of other sources of infection, I cannot feel that the drastic measures recommended for prevention are needed. This is particularly true for the large number of cases of tuberculosis that are not in an active stage.

One more mode of infection is worthy of consideration, because it seems to me its importance has been underestimated. This is direct contagion. Our surgical experience has certainly taught us the important part that direct contact plays in infection by other germs, and I cannot see why tubercle bacilli should not follow the same rule.

The methods by which tubercle bacilli can be transferred from one person to another are many and obvious and need not be gone into here. But I would like to call attention to the fact that bacilli are often carried from one person to another in a moist state; that the interval of time between the germ leaving one person and reaching another is shorter by this method, and that presumably this is a virulent form of infection.

DIAGNOSIS.

I wish to speak of the symptoms and signs of latent or quiescent pulmonary tuberculosis, because I believe that it is often overlooked. A patient comes complaining of varying symptoms, which in the composite give a picture generally of a loss of physical vigor. Symptoms referable to the lungs are usually absent, nor can any history of any previous lung disease be elicited. Cough is seldom complained of (in fact) often denied; but on cross-examination you can often get the statement that they habitually "clear the throat" on rising in the morning. One of the most marked cases I ever saw, one I have watched for twelve years, a man who denied all symptoms of disease of the lungs, finally

acknowledged that sometimes he cleared his throat in the morning. He managed to get just enough sputum to moisten the bottom of the bottle and it was found to be teeming with tubercle bacilli, which later completely disappeared. Hemoptysis is often absent in these cases. Low weight (that is, below average) is often present, though sometimes the patients are normal in this respect. Indigestion, a "tired feeling," and palpitation with some shortness of breath on exertion are occasional symptoms.

When we come to the physical signs we often find an incomplete picture.

On inspection we sometimes find slight depression above the clavicle, as compared with opposite side, — in one case of a strong man in good health and full weight; without pulmonary symptoms, a marble could rest in the depression above clavicle on the affected side, which in my experience is much oftener the right than the left. This is not constant and, of course, depends on the extent of the disease. There may also be slight limitation of motion on the affected side.

On palpation and percussion the tactile fremitus is not often obviously increased, but there is commonly a slight comparative dullness, often best noticed in the supra-spinous or supra-clavicular fossæ.

On auscultation, when the respiration is natural, the inspiratory sound is often diminished as well as the expiratory, which is, however, usually prolonged. When the respiration is increased in vigor, the inspiration may appear like the other side, though sometimes harsher, but the prolongation and higher pitch of the expiratory sound becomes much more differentiated from the other apex. A good place to hear this is often in the triangle between the scapula, the spine and the curve of the neck. The voice sounds are louder and nearer the ear, particularly with whispers. Râles are usually absent, unless the patient has recently "caught cold."

I consider, then, that the combination of slight dullness, prolonged expiratory murmur, and increased vocal resonance at either apex, particularly the right, renders a case suspicious, and if these signs be combined with low weight, constantly rapid pulse, or a family history of tuberculosis, I treat the case as tubercular, even though bacilli and elastic fibres are not found. The sputum has often been negative in these cases, as it often is even in known tubercular cases, though possibly better methods may be able in future to find the bacilli in these cases, or blood examination throw more light upon the diagnosis.

I know that these three cardinal signs are not generally accepted as sufficient to make a diagnosis upon, and are referred to a normal variation of the right over the left apex.

My reasons for a positive belief in their significance are as follows:

- (1) The great frequency of pulmonary tuberculosis.
- (2) I have demonstrated in surgical cases among men with good history and fine physique the absolute similarity in these signs of both apices.
- (3) I have demonstrated by the x-ray the presence of solidification in these cases.
- (4) I almost always find these signs in cases that have tuberculous lesions elsewhere in the body.
- (5) I have watched some of these cases go on to full development of the disease in a well-recognized form.
- (6) These signs sometimes appear on the left side

when they could not be due to a right-sided variation.

In children the diagnosis of pulmonary tuberculosis is, I believe, difficult, but I am always suspicious of any unilateral trouble that is not distinctly lobar pneumonia.

Dr. Morrill, in "Keating," says "that broncho pneumonia is often the starting-point (?) of tuberculosis in children."

The evident conclusion from what has been said is in favor of a greater frequency of tuberculosis than is commonly believed, and this coincides with the statistics at the beginning of this paper. It is worth while to note that the prognosis of many cases as regards the ability to maintain life is good, and those individuals who have a natural expectancy of long life will *ceteris paribus* combat the disease most successfully.

I wish, in closing, to say a few words about treatment. My experience with tuberculin and anti-tubercle serum has led me to the conclusion that neither has a specific action on the disease, and, although Von Ruck and Trudeau report better results from tuberculin than from other methods, I cannot help feeling that it is Asheville and Saranac rather than tuberculin that is responsible. If tuberculin or a serum is superior, it must demonstrate its superiority in every city and town. It seems to me fallacious to assume that a disease with the chronicity of tuberculosis is going to react like an acute self-limited disease such as diphtheria. I believe that our resources are still to be found in sunlight and fresh air, rest and hypernutrition. My rule is, recumbency in the open air every fair day (following definition of weather bureau) for seven hours. This may be maintained, even in winter months, if the body temperature be kept up. If under such conditions a patient can gain, the question of a change of climate is open, otherwise I believe any change will be futile.

The question of nutrition is too large to consider here, but it means oftentimes all the resources at the physician's command.

THE HOMICIDE OF MRS. HATTIE E. MCCLLOUD.¹

REPORTED BY F. J. CANEDY, M.D., SHELburnE FALLS, MASS.

THE ninth day of January, 1897, was like one of the rare and balmy days of October; and as the sun rose from behind the eastern range of hills at Shelburne Falls and flooded the valley of the Deerfield with light and warmth, the somewhat sharp frost of the previous night was soon dissipated; and so clear was the sky and soft the air that there was nothing to remind us that we were at midwinter, unless it was the leafless branches of the trees and the brown of the landscape.

Most of the twenty-five hundred inhabitants of the pleasant village of Shelburne Falls, so picturesquely located among the hills on both sides of the Deerfield river, had been for some hours at work in factory or store, or about their business of the streets, when a messenger came hurrying down from the hillside above the town for the medical examiner, with the information that Mrs. Hattie E. McCloud, an educated and refined lady, daughter of County Commissioner Geo.

D. Crittenden, was lying dead in the woods a half-mile out of the village.

It was at about half-past nine in the forenoon that I entered the wooded slope where the body lay surrounded by some twelve or fifteen men, among whom was the father of the dead woman. Her father, coming forward to meet me, stated that his daughter had left home on the previous afternoon at about four o'clock to do some errands in the village, and when she did not return in the early evening, as expected, it was supposed by her family that for some cause she had decided to stay over night with her married sister living in town, and that for this reason no great anxiety was felt for her absence and no search made. He also said that she was subject to fainting-turns, and had probably slid down into this place in one of these spells and died from exposure to the cold, and that he didn't think there had been foul play in the case.

Mrs. McCloud was lying on her back seventy feet below the road on sloping ground with her feet down the hill, the point where she lay being connected by a path with the road leading from the village to her home. She was dressed in the usual winter clothes worn by a lady in her position, the outside garment being a loose cape with a fur collar fastened at the neck by a button. There was little disarrangement of her clothing; and her legs were extended, somewhat separated, and covered with her skirts to the knees. Observing the livid color of her face, with froth about the lips, I unbuttoned and turned down the collar of the cape, which revealed discoloration marks with skin abrasions over the larynx and upper portion of the trachea. On raising the skirts I found she had on open knit drawers, which were blood-stained about the genitals. Calling the attention of Mr. Crittenden to the marks upon her throat, I told him there was reason to suspect that her death had been by violence, and that the body and all circumstances connected with her death would have to be subjected to a careful investigation. After noting as carefully as possible the position and condition of the body as found, and ground and objects about, I had it placed on a horse blanket brought from my carriage, and carried by the hands of six men an eighth of a mile up the hill to her home. Before leaving the locality I requested the people to leave the ground, and stationed a man near by in the road to see that no one went upon the spot. I then followed the body to the house, had it laid upon a lounge in a cold room, with none of the clothing disturbed, and returned to the village to telephone District-Attorney Hammond, at Northampton, for an order for an autopsy and an officer. At 11.30 State Detective Benson Munyan arrived, bringing the order for the autopsy, which, assisted by Dr. F. H. Zabriskie, of Greenfield, I proceeded to make at half-past one o'clock in the afternoon.

The description of the autopsy is best given in my report to District-Attorney Hammond, which I will read from this point:

"To the District Attorney of the Franklin District: You are hereby notified that on the ninth day of January, in the year one thousand eight hundred and ninety-seven, at nine o'clock A. M., I received notice that there had been found lying within the said district the dead body of a woman, who was supposed to have come to her death by violence; and upon receiving said notice, I forthwith took charge of said dead body, which I found lying on its back in the woods

¹ Read before the Massachusetts Medico-Legal Society, October 6, 1897.

seventy feet from the road leading from the village of Shelburne Falls over Crittenden Hill, and about one-fourth of a mile from any dwelling.

"I identified the body as that of Mrs. Hattie E. McCloud. External appearances were as follows: Hair, tangled and filled with broken leaves, was drawn out loose above her head. Hat off, lying on the ground in good order about five or six feet above her head, toward the road. Outside garment a cape, buttoned around the neck. Hands dressed in black yarn gloves, clenched tightly by her sides. Feet dressed in cloth shoes, with rubber overshoes, and legs covered by her skirts to the knees. The face and lips were livid, with froth about the mouth. Eyes closed, mouth closed. On raising her skirts considerable whole and broken leaf matter was found adhering to the open knit drawers. The hands, face, feet and other external parts of the body were frozen. Red marks on front of throat, with abrasions of the skin over the larynx, upper part of the windpipe and under side of the chin.

"I ordered the body removed to the house of her father, George D. Crittenden, where an autopsy was made by myself, assisted by Dr. F. H. Zabriskie, at about two o'clock A. M., January 9, 1897, and witnessed by Benson Munyan, Edwin Baker, Wilfred Ball and William Johnson (undertaker). Wilfred Ball acted as clerk, and took notes at my dictation. Inspection of the body showed a livid face, ecchymosis of the lips and eyelids, dried frothy matter about the lips, abrasions and red marks about the front of the neck over the larynx and windpipe, with prints of a thumb and three fingers clearly outlined. The hair was tangled and filled with dry forest leaves. Clothing not torn or disarranged. Her open knit drawers were stained with blood at the opening, and sticking to the drawers about the thighs and legs, also in the hair of the genitals, were found dry forest leaves, most of them more or less broken up. The lips of the vulva were swollen and gaping, and dark blood was oozing from an abrasion at the entrance of the vaginal canal.

"On dissection of the neck the superficial veins were found much distended with dark fluid blood. The muscular tissue about the larynx and upper portion of the windpipe was stained with blood from capillary bleeding; the proper relations of the cartilages of the left side of the larynx disturbed, and the second and third rings of the windpipe broken in front. The lungs were filled with dark venous blood. The cavities of the right side of the heart were also filled with dark fluid blood, but the left auricle and ventricle were empty, and the organ and its vessels apparently healthy. The uterus and ovaries were normal. She was not menstruating. The blood-vessels of the brain were distended with dark venous blood; otherwise the brain was healthy.

"Matter stained with blood was removed by a teaspoon from different parts of the vaginal tract, and taken to Greenfield by Dr. Zabriskie for microscopical examination. The examination was made by Dr. Zabriskie, assisted by Mr. Frank B. Wells, an expert microscopist, with the following result: Semen with spermatozoa was found in the specimen taken from the upper part of the vagina, also much vaginal cell matter, a part of a leaf, and several bits of hair—the latter being found in the specimens taken from the lower portion of the vagina.

"Mrs. McCloud was thirty-seven years of age; had

been a widow six years; was well nourished and strong; of medium height, and weighed 145 pounds.

"My examination shows clearly that Mrs. McCloud died from strangulation by means of a hand upon her throat, and that sexual connection with her had taken place at or near the time of death."

This was dated at Shelburne Falls, January 12, 1897.

John O'Neil, Jr., a man twenty-eight years old, almost always out of work, and of gross habits of intemperance, very soon attracted notice and excited suspicion by his behavior—more especially by the free use of money in the saloons, which he was known not to have possessed before the evening of the homicide. He was arrested on the charge of murder January 12th, and the government at once set to work to make out their case against him on what proved to be wholly circumstantial evidence, which was only successful through the most able and carefully prepared work of the district attorney and those whom he called to his assistance.

Evidently the first hope of the defence was to show that the woman's death was not by violence, but that the cause and manner thereof were different from that claimed by the prosecution, or at least to throw doubts upon this claim; and to this purpose both the medical examiner and his assistant, Dr. Zabriskie, were subjected to a long and severe process of cross-examination. The government, by request of counsel for the defence, secured for them the services of Dr. Woodbridge, Professor of Anatomy and Physiology in Williams College, and a very able and successful practitioner of medicine at Williamstown; and it was under his advice and instructions that the cross-examinations were conducted at the trial.

Every step of our work was closely followed, and the order in which it was done, and every means possible put forth to weaken the force of the conclusions we had reached, both from gross appearances as well as from the microscopical examination.

On the third day the defence came into court, admitting the government's claim that a homicide and rape had been committed, and Professor Woodbridge went home. The trial lasted eight days; and though the prisoner was never located within an eighth of a mile of the spot where the body was found, and not any direct and positive evidence offered, yet the jury brought in a verdict of murder in the first degree within an hour after being charged by the judge.

CONTRECOUP; ITS RELATION TO INJURIES OF THE HEAD.¹

BY B. H. HARTWELL, M.D., AYER, MASS.

MUCH has been said by the older writers about injury to the skull by contrecoup, but it is probable that the skull is seldom fractured by force applied from the opposite side of the head, except those cases of fracture of the base from blows upon the vertex, and a large proportion of these are from radiation and not contrecoup. Aran found only four of the latter out of sixty, in which the base of the skull had been fractured, the others having radiated from the site of the blow. Charles Phelps states that 60 per cent. of severe injuries of the head involve fracture at the base, and a large majority of these are continuous

¹ Read before the Massachusetts Medico-Legal Society, October 6, 1897.

with fissures extending from the vertex. The character and extent of these injuries is so influenced by the nature of the blow, its rapidity, the instrument used, the position of the body and head, the variation in the density and thickness of the bone in different individuals that no rule can be formulated as to the amount of injury done by a given blow. Injuries to the brain from contrecoup are much more frequent, and it is desired to direct attention to lesions that are opposite to or more or less remote from the force applied, and which may appear minor in degree when only said force or the character of the injury is considered.

It is not infrequent that cases come under the notice of the Medical Examiner in which the local lesion is small in comparison to the brain injury and in the absence of cerebral symptoms have been treated by the medical attendant as simple contusion, or have received no treatment at all. These cases are of a good deal of interest to all medical observers, and in their medico-legal bearing are of great importance to us. They furnish additional proof that the answer to the question, "What cases shall be viewed by the Medical Examiner?" should be, "All cases where violence enters as a factor in the cause of death." By violence here is meant force from without, whether or not it appears plain at the time that it was at the hands of some person or persons. It is not difficult to understand how a blow upon a thickened portion of the skull in being disseminated over the head should fracture the bone on the opposite side, where the resistance is less, as in the case of our martyred President Lincoln, where the bullet entered the occipital bone and fractured the orbital of the opposite side, or in cases of fracture of the base of the skull from a blow upon the top of the head. But that a blow upon one part of the head should injure the brain at or near the opposite side without injury to the skull, either at the site of the blow or the brain lesion, is not so readily understood. Duret interprets these lesions by a certain elasticity of the cranial vault, and the pressure in the brain of the cerebro-spinal fluid, and has shown that the wave in this fluid created by a blow produces what is often its maximum effect on the opposite side of the head, tearing vessels of the pia and cortex.

We have abundant proof that the skull has a certain amount of elasticity. We know that the cerebro-spinal fluid extends from the lymph sheaths of the small cerebral arterioles into the spaces between the convolutions, thence into the large sacs, the largest four being near the fissures of Sylvius, at the base of the brain, the inferior portion of the spinal cord and below the cerebellum, this latter connecting through the foramen of Magendie with the fourth ventricle, thence by the iter e tertio ad quartum ventriculum with the third and lateral ventricles. These anatomical points are necessary that we may understand the phenomena of concussion and explain disseminated cerebral contusion.

The following cases, briefly stated, will serve to illustrate:

C., colored, age thirty, large frame, well developed and muscular, was at work in a brick building when a brick fell and struck the top of his head to the left of the median line. He paid no attention to it at the time except to notice some dizziness and soreness at point of injury. There was contusion of the scalp, but no bleeding or separation of the parts. He con-

tinued to do some light work, but complained of headache and a feeling of easy fatigue. Four months afterwards he was found dead in bed, not having been seen for two days. He lived alone and had no medical attendant. There were no marks of violence upon the body. A slight scar was found at the point of the blow, but no injury of either external or internal tables of the skull. In the middle lobe of the brain, right side, about one-half inch from the base of the skull, was a spot of softening the size of an almond. It was of a soft creamy consistency and around it the brain substance was yellow in color. The rest of the brain was in a healthy condition and the other organs of the body showed no evidence of disease.

C. P., age sixty, was thrown violently upon the sidewalk by a large dog running in the opposite direction. He struck the outer portion of the left orbital ridge on the ice, cutting through the skin and causing a good deal of swelling and discoloration. He did not consult a physician. When seen four months afterwards, he gave a history of continuous pain from the time of the accident back of the right ear, though he had been attending to his usual duties. Temperature 101°, pulse 70, labored. He was put to bed and the unfavorable nature of the case explained. The rise of temperature continued for two weeks. Meanwhile almost complete paralysis of the left side developed, with delirium and stupor. Gradual improvement took place, and at the end of six months recovery was complete.

W. B., age fifty-three, was sitting in a chair in the rear car of a freight train, when the car was suddenly stopped by the setting of the brakes. He was tipped back, striking his head against a portion of the car. He got up, complained of pain in his head, became unconscious and died in eight hours. There was no bruise or mark upon the head, nor was the skull injured. Autopsy showed that the pons varolii had been torn, and in the softened places were small clots of black blood.

S., age twenty-eight, was struck on the left side of the head two inches from the median line. He lived forty hours. There was a stellate fracture extending to the base of the skull, but no depression of the bone. In the middle lobe of the brain, right side, under the pia mater, was a brown spot, size of a peanut, composed of broken-down brain tissue and blood from injured vessels. There was no fracture of the bone on right side, nor injury of the brain except at this spot.

Contrecoup is a factor in the causation of death in certain cases and is to be taken into consideration in all injuries of the head; and outside of medico-legal questions, if an operation is to be performed, the side to be opened is to be determined by cerebral localization rather than by external evidence of injury. The first two cases show that results may not come upon receipt of the blow, and, although they were purely accidental, might easily have been homicidal. The third case, from the absence of all external evidences of injury, the character of the blow, the manner of death, the short time that elapsed after the fall, the increasing coma and absence of reflexes might readily have been mistaken for apoplexy. In the fourth case, though the disorganization of a small portion of the brain had nothing to do with the death, it is still interesting from the fact that had the fracture

not radiated to the base of the skull, death might not have resulted for some time, and the blow as a cause have been overlooked.

Clinical Department.

FOUR INSTANCES OF APPENDICITIS IN PATIENTS OF ADVANCED AGE.

BY J. C. IRISH, M.D., LOWELL, MASS.

SINCE the beginning of the present year, among my cases of appendicitis have occurred the four following, which are worthy of mention principally on account of the age of the patients :

CASE I. Miss A., of Billerica, aged sixty-five, patient of Dr. Tyler, Billerica. The attack had continued about three weeks before the operation, which was performed February 23d. There was a large pocket of pus, containing in all about two quarts. The appendix not found. The cavity was washed and drainage inserted, and the patient made a complete recovery with no return of the difficulty.

CASE II. Mr. B., of Westford, age seventy-six, I saw with Dr. Bass, of Lowell, May 12th. This patient had an old, inguinal hernia, which a truss had only imperfectly retained. Although the intestinal portion of the hernia seemed to return to the abdominal cavity without difficulty, there remained a mass that was irreducible. The patient gave all the symptoms of acute intestinal obstruction, so the conclusion was reached that the man was suffering from intestinal strangulation in connection with this hernia. Dr. Bass made an incision over the hernia; but no incarcerated intestine being encountered, the incision was extended upward through the abdominal walls, for several inches, and a gangrenous appendix was found and removed.

The abdominal cavity contained quite a large quantity of sero-pus; in short, there was gangrene of the appendix, with general peritoneal infection. The patient died a few hours after the operation.

CASE III. Mrs. K., of Lowell, aged seventy-five, under the care of Dr. Pinkham, of Lowell. The patient gave a history of preceding slight attacks of appendicitis, from which she recovered. The present attack commenced August 14th. August 18th I operated, and found a small pus-pocket around a perforated appendix, containing two fecal concretions; appendix was removed and cavity drained. The patient died two days after the operation, death apparently due simply to her generally enfeebled condition, as nothing, so far as the operation was concerned, went wrong.

CASE IV. August 26th, Mr. C., of Lowell, age seventy-six, under the care of Dr. Chadbourne, of Lowell. On August 24th he developed the ordinary symptoms of an attack of appendicitis. I saw the patient August 26th. At this time, temperature was 102°, pulse 120. There had been extreme pain over the site of the appendix, and marked tenderness at McBurney's point on pressure. A well-defined bunch could be traced in the region of the appendix. No operation was done; and the patient, at the end of about four weeks, had made a complete recovery. In this case, although the diagnosis was not verified by operation, still, from the above symptoms, I am

absolutely certain that we were dealing with an ordinary, typical case of inflammation of the appendix without perforation.

These four cases, in an approximate total of forty seen by me within this year, may be a rather unique experience; still, they establish the fact, if not established already, that appendicitis may occur in very old people. To a certain extent, they tend to show that the disease is not so very infrequent among patients of advanced age.

Medical Progress.

RECENT PROGRESS IN OPHTHALMOLOGY.

BY MYLES STANDISH, M.D., AND WILLIAM D. HALL, M.D., BOSTON.

THE TREATMENT OF HIGH MYOPIA BY OPERATION.

DURING a discussion led by Mr. Lawford at the July, 1896, meeting of The British Medical Association concerning the treatment of high myopia by operation, allusion was made to the great frequency of the occurrence of myopia in Germany and Austria to explain why the operation has been done so much more frequently there than in other countries. The age, state of health, the character of the myopia and complications that exist should be considered as well as the degree of the error. The social condition and the nature of the employment must also be thought of. The operation does not benefit myopes having less than 11 D., while Schweigger's case of 33 D. is the highest thus far reported as having undergone operation. After removal of the lens there is noticed a diminution of the myopia in most cases of from 16 to 18 dioptries, and this greater the higher the myopia. A myope of 7 D. may be found to have become hypermetropic 6.6 D.; and in Schweigger's patient there remained only 13 D. after the removal. A fluid vitreous or a choroidal atrophy is not found to contraindicate, although it would be better not to interfere if a staphyloma should invade the macula. This procedure is especially applicable to children and young adults; but von Hippel and Sattler have been satisfied with their results in patients as old as sixty-four, and others have operated successfully on patients between the ages of thirty-five and fifty—a tolerance probably explained by an observation of Sattler that the lens of myopes does not sclerose as in emmetropia and hypermetropia. Although Vacher¹ has reported a series of good results by extraction, others are generally in accord in recommending a free breaking up of the lens substance with consecutive evacuation of the fragments or repeated discissions with evacuation, if indication for it arises, through a small corneal incision by means of a curette or the syringe of Bowman. An iridectomy should be avoided, even if possible, as a round and contractile pupil is even more to be desired in this instance than after the cataract operation. Usually the vision is doubled or quadrupled; and, even if it is not increased, the visual capacity is more satisfactory, and patients can now tolerate weak *plus* or *minus* glasses continuously for distance who formerly could only wear their strong concaves for short intervals. The advantage in near work through ability to converge and the acquirement of binocular vision is

¹ Rev. Générale d'Ophthal., June, 1896.

obvious as well as the lessening of the fatigue through absence of the accommodation. Although detachment of the retina has happened at varying intervals after the operation, there is no reason to suppose that the operation increases the liability of it to occur. Careful observers have certainly noticed a cessation of the elongation of the optic axis.

Mooren² believes that myopia is brought about by spasm of the accommodation, as a myope cannot bring about a sharp accommodative act without at the same time exerting to the utmost the internal recti for the accomplishment of the requisite convergence. This finally leads to exhaustion of the muscle and to new accommodative effort. The gradual disturbance of circulation through the spasm causes a gradual softening of the posterior part of the globe. The yielding of the sclera has its limit; and frequently an increase of tension is noticed at which time wearing full correction is harmful, on account of the strong accommodative effort necessary. In consequence of the formation in the vitreous of threads not affecting the transparency of the media, which, by their traction cause separation, he is in favor of the treatment of Deutschmann by injection. Out of 149 operations he records one failure. Under cocaine the capsule is split freely with a Græfe knife, which is then carried through two-thirds of the depth of the lens, and after the aqueous has escaped the cornea is trituated through the closed lid with the finger, after which iodoform and plaster. Swollen cortical can be removed through a small incision, and a secondary operation can take place when all signs of irritation have disappeared. He prefers to operate on both eyes at the same time, if possible.

Fukala³ favors removal of the lens in myopia of 16 D. and over. It was Boerhaave who first, in 1746, recognized the cause of myopia to be due to a lengthening of the axis of the eyeball. Fukala considers the operation applicable to those cases of myopia in which there is a vision of at least 0.1 for distance and T. 1 and 2 for near. Although hemorrhage and detachment are to be feared, he prefers to do both eyes at one sitting. His method consists in a free dissection through a dilated pupil under cocaine, and is guided subsequently by indications as they arise. He thinks the operation to be practically without danger, with the additional advantage that the myopia is checked and distant vision is improved.

Fukala⁴ finds the improvement after the operation to be from two- to eight-fold. He considers acuteness of vision to be due to the size of the retinal images, to their light intensity and to the perception capacity of the retina. He finds that the retinal image of the myopic eye from which the lens has been removed is larger than in a myopic eye which has been corrected by a concave glass. The loss of light through refraction and reflection is less in the aphakial eye, especially when it becomes emmetropic, than in a corrected eye in which five refracting surfaces are to be considered and which is a still more complicated optical apparatus. As a result of the operation there is not only increased ability but also increased desire to use the eyes for distant objects, and thus a greater sensitiveness to retinal impressions is obtained.

Leber,⁵ in regard to the improvement of vision after the myopia operation, believes it must be determined how far it concerns an improvement in the power of definition of the eye, due either to better functioning of the retina or greater sharpness of the retinal images, or how much of it is due to an increased size of the images. He is of the opinion that any considerable improvement of vision in myopia after removal of a lens uncomplicated with opacity, which does not depend upon the magnification of the retinal images through a correction, can scarcely be referred to the improvement in the optical conditions, but must be explained through an influence of the retina.

Fevrier,⁶ regarding the origin of myopia, believes that from birth to adult age the eye tends to assume a condition of higher refraction, and that this tendency, except in malignant conditions, ceases at the time when the different parts of the face and cranium are retarded in their development. During this period the orbital cavity is continually modified in shape, and the relations between the globe and its aponeurotic and muscular attachments with the different constituent parts of this cavity undergo concomitant modifications which have as a result change in the positions of the meridians of the globe. Binocular vision claims such a position of the two meridians that retinal images shall occupy similar positions and also that they be superimposed, together with perfect coincidence of the two fossæ and of the two vertical meridians. Deviation of the meridians is corrected by the superior oblique muscles. Irrespective of the refraction, while converging and looking down, these muscles are strongly brought into play; and if this action exceeds certain limits, myopia results. Progressive myopia is the result of lesions of the deeper membranes, the origin being various, but in many cases due to pressure and traction exerted upon the globe, of which the first indication is posterior staphyloma.

TUBERCULOSIS.

Coppez⁷ describes tubercular iritis in a previously healthy young dairy-maid, bacilli from the udder of a diseased cow having been introduced at the base of the distal phalanx of the ring finger. The course was characterized by inflammatory nodules limited to the skin and subcutaneous tissue, which broke down and finally healed by an adherent scar. There were sixty or seventy of them in all which were mostly curetted and cauterized. A careful examination did not reveal any signs of visceral tuberculosis. An iritis with ultimate destruction of the eye appeared early in the disease and enucleation was done about six months after the first appearance. Nothing abnormal was noticed in the posterior part of the globe, the choroid being scarcely hyperemic. The iris was the primary seat of the lesion and was invaded in its totality, while only a few and unimportant nodules were noticed in the ciliary processes. Pus from one of the abscesses produced in rabbits a smart iritis and panophthalmitis and after glandular involvement the animals died in the course of a few months cachectic.

² Die medicinische und operative Behandlung kurzsichtiger Störungen, Wiesbaden, 1897.

³ Heilung hochgradiger Kurzsichtigkeit, Leipzig, 1896.

⁴ Zur Verbesserung der Sehschärfe nach Myopie-operationen, Græfe Arch., xliii, 1.

⁵ Bemerkungen über die Sehschärfe hochgradiger myopischer Augen vor und nach operativer Beseitigung der Linse, Græfe Arch., xliii, 1.

⁶ Recherches sur la pathogénie de la Myopie, Ann. d'Oc., Septembre, 1896.

⁷ Tuberculose cutanée et oculaire sans manifestations viscérales, Rev. Gen., October, 1896.

In sections the typical bacilli were found occupying their usual relations in the giant cells. The author considers this unmistakable relation between cause and effect to be worthy of record on account of the great difference in opinion of those who have studied the origin of ocular tuberculosis; Lagrange,⁸ for instance, believing that it is almost always primary, while De Wecker,⁹ on the contrary, believes it to be usually secondary. The protection offered by the cornea and sclera, which are covered by an almost insurmountable barrier of epithelium, the chemical action of the tears and products of other organisms and the rarity of conjunctival tuberculosis with involvement of the iris, he points out as suggesting an introduction elsewhere, with transportation of the bacilli by the blood or lymph channels to the uveal tract.

Liebrecht¹⁰ recognizes a miliary form as being a local manifestation of a general condition, and also a variety primary to and localized in the choroid, which can exist as a diffuse tuberculosis or as an isolated tubercle. Anatomically he finds the miliary tubercles to consist of groupings of round cells with occasional epithelioid cells, but without giant cells and necrotic areas located upon the pigment layer of the retina. The solitary tubercle appears as a choroidal tumor which partly projects into the vitreous and partly, if it has perforated the sclerotic, extends into the orbital tissue. The rest of the choroid may be normal and the line of demarkation sharply marked. It is formed of a mass of nodules composed of epithelioid cells and caseated areas in the vicinity of which are giant cells. In the diffuse form the choroid and ciliary body are transformed into a uniform mass of epithelioid cells with areas of caseation and numerous giant cells, while the retina remains unaffected. He considers the miliary form as secondary and due to bacilli being transported by the circulation, but admits the difficulty of deciding positively as to whether the local variety is primary or a secondary manifestation of a focus located elsewhere, but is rather in favor of considering it as secondary. Deutschmann thinks, as he has, by injecting pus of tubercles under the dura of rabbits, obtained a development of tubercles in the choroid and on the sheath of the nerve, that miliary tuberculosis of the choroid may also be a symptom of tubercular infection of the brain.

SUBACUTE CONJUNCTIVITIS.

Morax¹¹ proposes the above name for a frequently observed variety of catarrhal conjunctivitis, and one which he feels certain is caused by a particular micro-organism, inasmuch as it can be differentiated from other varieties by the clinical appearances and by a bacteriological examination. It affects all ages, but especially the adult and old age; the onset is sudden and its course is marked with a slight muco-purulent discharge and sensation of smarting, but without actual pain. It is apt to be bilateral and does not go on to corneal complication. It is a benign affection and yields easily to weak solutions of zinc sulphate, but does not tend to spontaneous cure if left to itself. It may be mistaken for light and prolonged conditions of the acute contagious conjunctivitis due to the bacil-

lus of Weeks, which, however, is more often observed among children. The micro-organism is a diplo-bacillus appearing as two short rods separated by a clear space. Quite long chains are sometimes seen. It differs from the pneumo-bacillus of Friedländer in having no capsule and being more distinctly rod-like. They are found free, or there are cell inclusions and large numbers. They are stained with methylene blue and dilute fuchsin and are decolorized by the method of Gram. It does not grow well upon gelatin, peptonized agar or bouillon, but better in the presence of human or animal serum. On serum-agar after twenty-four hours appear a few small transparent colonies, later becoming opaque. On coagulated serum gradually liquifying. Bouillon serum is made opaque, with a sediment. The temperature should be at least 30° and in the presence of air, and can survive six months at 35°. After a few days the secretion shows involution forms which stain badly. Spore formation has not been noticed. It has little resistance for physical agents and a temperature of 58° kills in a few minutes. Like the bacillus of Weeks, it is not pathogenic for animals, but a pure culture carried through the fifth generation after an incubation provokes the typical inflammation in man.

(To be continued.)

Reports of Societies.

NEW YORK NEUROLOGICAL SOCIETY.

STATED Meeting December 7, 1897, B. SACHS, M.D., President.

TOXIC TREMOR AND HYSTERIA IN A MALE.

DR. J. ARTHUR BOOTH presented a man whom he had seen one week ago at the French Hospital. The patient, sixty-one years of age, had been engaged up to 1885 as a mirror polisher, using mercury, and since then in the same occupation, but using silver instead. His family history was negative as regards nervous disease. At the age of twenty-two he contracted syphilis, and was treated for this for some time. He then enjoyed good health up to thirteen years ago. At this time he fell on the street with both lower and upper extremities in a state of clonic spasm. He was taken to the Boston City Hospital, and subsequently was under the care of Professor Charcot for several months. He returned to this country in 1887, and resumed his work of mirror polishing, using silver. He has had three or four attacks of tremor. The present illness began November 17th, after having worked very hard for some time previously. The tremors presented by the patient, the speaker said, certainly resembled those observed in cases of mercurial poisoning. A very slight tap on the body would set up a pitiable degree of reflex tremor. There was no nystagmus, but there was slight ataxia. It was found that the tremor was greatly increased when attention was drawn to him, and for this reason it seemed not improbable that there was a hysterical element in the case. There was no bladder or rectal symptoms.

DR. W. M. LESZYNSKY said the case looked to him to be a functional one, added to the evident toxic tremor. The fact that he had had such attacks, and had recovered from them, would seem to confirm this view.

⁸ Arch. d'Opht., 1896.

⁹ Clin. Opht., 1896.

¹⁰ Tuberculose de la choroid, Soc. Biolog. de Hambourg, October, 1896.

¹¹ La conjonctivite subaigue, Ann. d'Oc., January, 1897.

DR. F. PETERSON and DR. B. SACHS concurred in the opinion that marked hysteria was imposed upon a mercurial tremor.

NEURITIS FOLLOWING AN INFECTED VACCINATION.

DR. W. B. NOYES presented a baby. It had been vaccinated last spring, and the wound had become infected. When the bandages had been removed, it had been found that the child could not move the arm. Examination showed that the deltoids, biceps and the muscles supplied by the ulnar nerve were involved. They did not react to faradism, but gave the reaction of degeneration. The case seemed to him at the time to be a neuritis resulting from an infected wound, but two other opinions had been offered, namely, that it was the result of tight bandaging, and that the child had had an attack of anterior poliomyelitis. The condition had developed within two weeks after the vaccination, and the motion of the arm had been largely recovered. There was no history of constitutional disturbance. His own opinion was that the case was one of ascending neuritis involving the circumflex, ulnar and musculo-cutaneous nerves.

DR. PETERSON thought that poliomyelitis could hardly be considered. The diagnosis offered by Dr. Noyes might be correct, or else the condition was due to pressure. He inclined rather to the latter view.

PULMONARY TUBERCULOSIS AND TABES COMBINED.

DR. FRAENKEL presented a man, thirty-nine years of age, unmarried, whose family history was negative. About ten years ago he contracted syphilis, but enjoyed fairly good health up to two years ago. Then he had repeated hemorrhages from the lungs, and developed rapidly the signs and symptoms of pulmonary tuberculosis. On admission to the Montefiore Home in May, 1896, there were pronounced signs of pulmonary tuberculosis, and of a large cavity at one apex, and death seemed near. The left pupil was but slightly responsive to light. The temperature never rose above 96.5° F. and the pulse above 80. He steadily improved up to May, 1897, at which time his sputum still contained tubercle bacilli, but his condition was in every way better. The signs of the cavity had disappeared. His pupils were unequal, and the left was myopic. The scapular, abdominal, gluteal and plantar reflexes were exaggerated on both sides. The left patellar knee-jerk was markedly diminished. There was no evidence of ataxia or inco-ordination. On November 18, 1897, physical examination showed the thoracic organs in about the same condition. The patient then complained for the first time of occasional shooting pains in the left lower extremity. The sexual appetite was markedly diminished. The left knee-jerk was greatly reduced. The three points of interest were: (1) The marked unilateral character of the symptoms; (2) the combination of tuberculosis and tabes—a very rare condition; and (3) the mildness of both diseases.

DR. LESZYNSKY said that he had seen a number of cases with various forms of disease, both of the lungs and abdomen, with but slight change of pulse and temperature, even in neurotic individuals. He had in mind a patient who showed very markedly unilateral pupillary symptoms such as had been referred to.

DR. NOYES said that the case appeared to be one of fibroid phthisis. Non-progressive tabes is due rather to a collection of connective tissue than to any actual

degeneration of the posterior columns. These two conditions were occasionally associated, and the case presented was probably an example of this.

TIC CONVULSIF.

DR. WILLIAM HIRSCH presented a young man having tic convulsif. He first saw him about a year ago, and the symptoms had not changed materially since then. The object in bringing the patient was to demonstrate a certain relation between his symptoms and the psychical condition present. On tapping the cheek, the patient made a number of grimaces. The fact that the symptoms had not undergone change was in marked contrast with what was observed in hysteria. This patient had had articular rheumatism, followed by endocarditis and the development of mitral insufficiency. Shortly afterward he had developed this neurosis.

WRY-NECK AND ASYMMETRY OF FACE.

DR. GRAEME M. HAMMOND presented for DR. MEIROWITZ a boy of sixteen who had come under observation for the relief of what appeared to be a wry-neck. As far back as could be remembered, the neck had been deflected to the left, but he had never experienced any pain in the neck or elsewhere. There had been no twitching or jerking. Examination showed that the head deviated to the left; the left half of the face exhibited a perceptible slope from above downward to the left eyebrow, ala nasi, angle of mouth and angle of jaw were all higher than the corresponding points on the right side. The muscles of the neck were distinctly hypertrophied. The skull over the parietal region showed a perceptible flattening, not observed on the other side. The movements of the head were free in all directions. The hair curved to the left side. There was no disturbance of the cranial nerves, and no hemiatrophy, and the intelligence was normal. There was no family history of similar defects.

DR. FRAENKEL remarked that cases of congenital wry-neck had been explained as resulting from a lessened developmental resistance on one side.

DR. PETERSON remarked that it was unusual to find so good an example of the unequal development of the ear.

DR. ONUF said that in most cases of congenital wry-neck there was asymmetry of the face. He was not sure that the pressure was alone responsible for the unequal development; it would hardly explain the asymmetrical development of the ear. The atrophy seemed to him possibly the result of twisting of the carotid artery on one side, with a consequent interference with the nutrition on that side.

ENORMOUS HYDROCEPHALUS.

DR. F. PETERSON presented the brain from such a case, one of the largest for many years at the Randall's Island institution. The patient was a woman of twenty who, in the early stages, had had a left hemiplegia and imbecility. As the disease progressed, she became diplegic and completely idiotic. The following are the measurements of the head: Circumference, 69.5 cm.; approximate volume, 17.14 c. c.; naso-occipital arc, 47 cm.; naso-bregmatic arc, 16.5 cm.; bregmatic-lambdoid arc, 19 cm.; binauricular arc, 50 cm.; antero-posterior diameter, 19.5 cm.; greatest transverse diameter, 18.5 cm.; length-breadth index, 94.8 per cent.; binauricular diameter, 12 cm.; auriculo-bregmatic radii, 20 cm.; facial length, 11.2 cm.; empirical

greatest height, 17.7 cm.; height Beta-x, 19.2 cm. At the autopsy the sutures were found fully united and the fontanelles perfectly closed. The skull bones averaged eight millimetres in thickness. The dura was not adherent at any part. There was a very little fluid in the dura. All of the fluid was in the ventricles of the brain, more on the right side than the left, for the brain of the right hemisphere had become in part membranous. Five pints of clear serum were removed from the ventricles. The third and fourth ventricles partook, to some extent, in the dilatation. It was unfortunate that through a mishap the brain was so injured that the patency of the foramen of Magendie could not be determined. Dr. Peterson said that, in his experience, it was difficult to examine this foramen, and apparently impossible to demonstrate the presence in any human being of the foramina of Hierzejewsky. It was very important in all cases of chronic hydrocephalus to examine, if possible, the foramen of Magendie, and not only that, but to determine the patency of the aqueduct of Sylvius and of the foramen of Monroe. He had, with Dr. Blake, at the Anatomical Laboratory of the College of Physicians and Surgeons, examined the brain of a ten-year-old hydrocephalic of Randall's Island, and in this instance, at least, had determined definitely the permeability of the foramina mentioned, and the aqueduct.

ABSCESS OF THE BRAIN.

Dr. Peterson presented a specimen showing an abscess of the brain that had been operated upon. The case had been seen on September 3, 1897, in the service of Dr. Brown, of the Mountinside Hospital, at Montclair, N. J. The patient was a male, forty-one years of age, who, in an attempt at suicide, had struck his head upon a rusty spike and had sustained a compound depressed fracture in the right occipital region, very near the middle line. He was trephined, and the depressed bone removed. The dura was found uninjured, and was left untouched. The wound became slightly infected; but aside from slight fever no symptoms of importance appeared until two days before he had seen the man, that is, for about two weeks after operation. He then gradually developed in twenty-four hours a left hemiplegia, with left hemianesthesia.

Examination showed complete paralysis of the left arm and leg, with considerable anesthesia over the paralyzed limbs; slight analgesia in places, and hyperalgesia in others. The plantar and cremasteric reflexes were normal. The knee-jerks were subtypical, slightly greater on the left side. The mind was clear. There was no aphasia, no involvement of the face or tongue. There was no evidence, in pupils or pulse, of intracranial pressure, and no symptom of cortical irritation. The temporal half of the field of vision of the left eye was lost. The right seemed normal. He heard a watch at only half the distance with the left ear as compared with the right. Taste was normal on both sides of the tongue. The fundus seemed slightly cloudy. A diagnosis was made of abscess deep in the brain, in the region of the posterior limb of the internal capsule. The surgeon was advised to trephine in the parietal region, considerably back of the motor area, and insert an exploring needle down into the supposed site of the abscess, should the patient grow worse. Two days later this was done. The abscess was found at the

site suggested, and was drained. The temperature became normal, the anesthesia disappeared and the patient moved his left hand; but a few days later he suddenly became worse, and died. The brain was sent to Dr. Peterson for examination. He found the dura very sclerotic over the site of the original injury close to the superior longitudinal sinus. The convolutions of the right hemisphere were considerably flattened. There was no meningitis. Deep in the anterior of the right hemisphere was an abscess, about the size of a hen's egg.

HEMIATROPHY OF THE BRAIN.

Dr. Peterson then presented a specimen showing apparent hemiatrophy of the brain. The brain was that of a Randall's Island patient, a man of thirty years, who had been in the idiot asylum for several years. A history of the origin of his trouble could not be obtained. He was a large, heavy man, with a hemiplegia (the arm being much worse than the leg) and with frequent and severe general epileptic convulsions. While able to be about, he was dull and stupid, and in intelligence would be placed in the grade of moderate idiocy. He died in an epileptic fit. There was nothing abnormal in the other organs of his body, but the brain presented the condition of marked right hemiatrophy. There was very slight evidence of microgyria, the convolutions differing as regards normality from those of the opposite side in being somewhat smaller. The membranes over the right hemisphere were, perhaps, somewhat thicker than over the left. An examination of the vessels at the base of the brain showed that the blood-supply was apparently equal for the two sides. It was undoubtedly a lack of development through some obscure and early pathological process.

A CASE OF ANYTROPHIC LATERAL SCLEROSIS, SUPPLEMENTARY REPORT.

DR. WILLIAM HIRSCH said that on October 1, 1895, he had presented to the Society a case of this kind. The patient was forty-three years of age, and had had poliomyelitis at the age of twenty. The clinical symptoms were such that at that time he had traced them from the old scar in the left anterior horn in the cervical region. The process must have approached the left pyramidal tract, and then, after affecting the right horn, spread over the right pyramidal tract, causing a spastic condition of the right leg. That was his opinion at that time, and a few such cases had already been presented.

In the discussion, it was claimed that the case was one of ordinary progressive muscular atrophy. But further clinical observation of the case showed that this was not the case. The man died on June 3, 1897, and Dr. Hirsch was now able to present microscopical specimens of the spinal cord in different regions, proving the correctness of his diagnosis. He said that in these specimens one could see the connective tissues spreading from the anterior horn to the left pyramidal tract, and the latter converted into connective tissue. The cells in the anterior horns had been destroyed, the connective tissue had formed all through the lateral tract. In the cervical region one bundle of connective tissue had spread backward into the posterior column, as he had previously diagnosed. Deep degeneration of the pyramidal tracts could be followed down to the lumbar region.

DR. HAMMOND asked how he would differentiate these specimens from progressive muscular atrophy.

DR. HIRSCH replied that the specimens showed that the case was not one of ordinary degeneration of the lateral tracts, but that the connective tissue grew horizontally from the anterior horn to the side. Furthermore, the ordinary progressive muscular atrophy is a symmetrical disease.

DR. G. M. HAMMOND said that in three unquestioned cases of progressive muscular atrophy that had been under his observation there had been a typical degeneration of the pyramidal tracts. On looking up the subject, he had found that Gowers made the statement that he had not seen a case of progressive muscular atrophy in which the pyramidal tracts had not been extensively affected. It was true that in the specimen presented one horn was affected more than the other, nevertheless both horns were involved.

DR. C. L. DANA thought these sections looked very much like specimens from a case of progressive muscular atrophy. If the pathological change were not one of degeneration of the horns and lateral columns, he would like to know what Dr. Hirsch thought it really was.

DR. B. SACHS thought the main point was as to whether the degeneration was strictly bilateral in the lateral columns, or more marked on the side of the old poliomyelitis.

DR. DANA thought that at the time of the poliomyelitis there had been considerable hemorrhage in the neighborhood of the anterior horns, and the lateral columns might have been injured and a scar formed. The degeneration would then be secondary to this scar.

DR. HIRSCH said that it was not a descending degeneration, but a growing out of connective tissue from the anterior horns peripherally and laterally in the direction of the pyramidal tracts, and the series of sections that he had made enabled one to follow this branching out of the bundles of connective tissue. This was quite different from an ordinary case of progressive muscular atrophy complicated by a secondary degeneration of the lateral tracts. The specimen presented showed that an old focus in the anterior horn had set up a secondary inflammation. It was difficult to form a correct conception of the case without a careful examination of the whole series of specimens. The case represented one of these processes of inflammation characterized by the formation of connective tissue.

DR. M. ALLEN STARR asked Dr. Hirsch if the focus of inflammation in one anterior horn and extending into the adjacent columns might not produce a secondary sclerosis downward through the cord and so explain the condition.

DR. HIRSCH replied that it extended laterally as well as upward. He had not yet examined the medulla oblongata. The poliomyelitis was in the cervical region of the cord, about the region of the left arm.

DR. DANA said that according to the specimens presented there was no lateral degeneration in the upper sections of the cord, but a posterior degeneration.

DR. HIRSCH replied that the gray matter did not appear perfectly normal except in the right horn of the lumbar region.

UNILATERAL ATROPHY OF THE BRAIN.

DR. PEARCE BAILEY reported a case of this kind occurring in a carpenter who was fifty-seven years of

age at the time of his death. He had been perfectly healthy up to the forty-seventh year, and had then had an attack of apoplexy. At this time he awoke to find one side powerless, and this power he never regained. The picture was that of extreme left hemiplegia. The atrophy in the paralyzed limbs was not unusual in degree. There was no disturbance of psychical sense functions or general intellectual capacity. Speech was clear. In the summer of 1897 he died of acute lobar pneumonia. At the autopsy, the dura mater was found adherent at the right anterior portion of the cranial border, and in the adhesions between the dura and pia was a collection of clear serum. It was not a cyst of the brain itself. The left hemisphere was normal in size. The whole right hemisphere was much smaller than the left. The unilateral atrophy involved also the brain-stem and spinal cord. The right internal carotid artery was less than half the size of the left. The forward portion of the right hemisphere was in a state of advanced chronic softening. Sections from the pre-central gyrus and from the occipital lobe contained few ganglionic elements. The cuneus was affected similarly, though to a lesser degree. Although the frontal lobes, which are supposed to be intimately connected with mental processes, were almost completely obliterated on one side, mentality had not been impaired. It was believed that the lesion occurred after complete cerebral and bodily growth had been attained. It was assumed that the original lesion was a thrombus in the right internal carotid artery, at or near its bifurcation. This case emphasized the necessity for caution in regarding any single region of the brain as indispensable to mental perfection.

DR. HERTER said that he had no doubt that the extreme degree of atrophy was the result of extensive arterial lesion; possibly the very slow development of the vascular lesion in the frontal region would go far towards explaining the absence of marked cerebral symptoms. In his experience, comprising cases of acute softening and abscess, where there had been extensive destruction of the frontal lobe on one side, there had been considerable interference with the mental functions.

DR. SACHS said it seemed to him very evident that Dr. Bailey's case was distinctly vascular in origin, which was in sharp contrast with Dr. Peterson's case.

DR. BAILEY, in closing, said that there seemed to be no doubt that the entire half of the brain in his case had been affected.

A NEW DEVICE FOR ADAPTING THE INCANDESCENT ELECTRIC CURRENT TO THERAPEUTIC PURPOSES.

DR. A. D. ROCKWELL demonstrated the action of an apparatus which, he said, comes under the head of shunt controllers, but is of novel construction. It ranges from one to seventy-five volts, and can be varied one volt at a time up to thirty volts, and then three volts at a time for the balance. The galvanic current in this way can be readily superimposed upon the faradic, giving most interesting therapeutic results. The movement of the milliampere-meter during the simultaneous passage of the two currents is somewhat greater than when only the galvanic current passes, probably owing to a lowering of the resistance of the body by the faradic current. This combined application had been found by him particularly useful in cases of exophthalmic goitre.

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LIVING WITHOUT A STOMACH.

"By the courtesy of the operator, and the enterprise of our representative at Zurich," the *New York Medical Record* (January 1, 1898), as the Editor informs us, is "enabled to publish for the first time a full and detailed account of this unique and most remarkable surgical feat" — the successful extirpation of the entire stomach. "The result of this case," the Editor continues, "in view of our generally accepted notions concerning the real value of the stomach, its physiological place in the economy, and the essential vital functions so long claimed for it, will strike all with becoming astonishment. It is rather an unexpected slight to what has always been considered one of the essential organs of the body, and one governing all others with undisputed sway and unquestioned autocracy. Its fabled quarrel with the other parts of the body, in the story of *Æsop*, would appear in the present light as scarcely more than the mythical hypothesis of a wild and unreasonable fabrication. The fact appears proven that the human subject can live and be reasonably active for months at a time without any stomach whatever, and obtain all the necessary digestion and nourishment from what remains of the intestinal tract. Is it possible that the latter may have a new set of functions not yet understood, or has the importance of stomach digestion been misapprehended and over-rated?"

These are swelling words, and deserve attention for several reasons, not the least among which is that the "enterprise" celebrated by the *Medical Record's* editorial has allowed the matter to reach the daily newspapers for exploitation in their own inimitable way. The story which they tell will be read with both mirth and sadness. It is not, however, with this regrettable notoriety that we are most concerned, distressing though it be to see an account so highly colored, so full of error, so steeped in wretched English, hawked about from one sensational journal to another; it is with the editorial itself that we feel constrained to enter the lists.

"The result, in view of our generally accepted notions concerning the real value of the stomach — its physiological place in the economy" — does indeed strike us with what we trust is "becoming astonishment." But we must confess that our wonder is not so much for the clever surgeon, and the "enterprising correspondent," as for the chasm that we see suddenly opened between the physiology taught by the *Medical Record* and that upon which we ourselves have heretofore relied. Our own views "would appear in the present light as little more than the mythical hypothesis of a wild and unreasonable fabrication." Still, though for a time cast down, we have plucked up heart to champion the cause of the extensive and, to our mind, important apparatus which the *Medical Record* unkindly terms "what remains of the intestinal tract."

We are not surprised that our learned contemporary, holding such opinions concerning the "economy," should feel that the total removal of the stomach "is rather an unexpected slight to what has always been considered one of the essential organs of the body, and one governing all others with undisputed sway and unquestioned autocracy." We await with much interest the statement of the Editor as to where he learned that the stomach "governed all the other organs of the body with undisputed sway and unquestioned autocracy." It is true that Bichat and Nasse, following earlier philosophers, placed the seat of the emotions, for example, compassion and the affections, in the viscera of the trunk; but their opinions are now not generally received. The *Medical Record*, so far as we are aware, is the only Modern still maintaining these ideas. It should be said, however, that the material changes that have taken place in the knowledge of digestion are the result of investigations made in the past twenty years, and are thus comparatively recent.

It is a little more than twenty-one years, we believe, since Czerny and his pupils, Kaiser and Scriba, removed the whole stomach from various dogs. One of these, operated upon December 22, 1876, lived for six years in perfect health. "In Leipzig, in the year 1882," writes Gamgee in his well-known work on "The Chemistry of Digestion" (p. 163), "Ludwig and his pupil Ogata were engaged in investigating the functions of the stomach. It occurred to them that it would be interesting to learn what had become of Czerny's dogs. Ludwig wrote to Heidelberg, to Czerny, who answered by sending the dog in a perfectly healthy state to Leipzig. It was in excellent spirits and ate all kinds of food with a keen appetite. The feces were normal. In consequence of the abundant food, it had put on weight and it did not appear to differ in any way from an ordinary dog.

"Ogata, working under Ludwig's direction, instead of having recourse to the formidable operative procedure of Czerny, established a duodenal fistula, which permitted the introduction, through the fistula, of an india-rubber ball, connected with a tube, which

allowed of the ball being distended with water, so that it shut off the stomach from the duodenum. It was then possible to introduce alimentary substances into the duodenum. It was found that the introduction of pounded egg and minced flesh into the duodenum, twice daily, sufficed to keep the animal experimented upon in health and up to weight. Ogata found that, in the main, digestion proceeded as usual, there being, however, somewhat less perfect digestion of connective tissue.

"These extraordinary results are in agreement with the knowledge which we possess, that the stomach discharges digestive functions which are shared by other organs and prove that in animals possessed of great vitality the failure of one organ may lead to such compensatory over-activity of the co-operating organs as suffices, for a time at least, to shield the organism from evil consequences."

To this excellent text-book statement of the modern view of the results of removal of the stomach should be added the fact that nearly all, and, in at least one case, the whole stomach has been removed from man. The patient from whom the whole stomach was removed was a tax collector at Stettin, and suffered from cancer. The operation was performed by Dr. Schuchardt. A year and a half after the operation the patient was as healthy "as any other man," and worked eight to ten hours a day. This case went the rounds of the German newspapers.¹ Even human beings, then, may obtain "all the necessary digestion from what remains of the intestinal tract."

It is not possible to speak here of the many interesting researches in this field in recent years. The action of the stomach as a reservoir for the food, feeding the intestine at measured intervals; the antiseptic properties of the gastric juice; the fact that water is not absorbed from the stomach but to a very limited extent; and other recently discovered facts, which give new interest to the physiology of digestion, must be passed over. They go far to provide the stomach with what the *Medical Record* calls "a new set of functions." The most recent of these investigations, and, in our judgment, one of the most interesting, is that reported for Mr. W. B. Cannon at the December meeting of the American Physiological Society (see the next number of the *American Journal of Physiology*). Following the suggestion of Prof. H. P. Bowditch, the movements of the food in the stomach have been investigated by mixing subnitrate of bismuth with the food, thus making it impervious to the Röntgen ray, and watching the swallowed mass with the fluoroscope. Mr. Cannon finds that the stomach consists physiologically of two distinct parts: the pylorus, and the fundus. Over the pylorus part, while food is present, constriction waves are seen continually coursing towards the pylorus. The cardia is an active reservoir for the food, squeezing out its con-

tents gradually into the pyloric part: The stomach is emptied by the formation, between the fundus and the antrum (that is, the part of the pyloric portion next the duodenum), of a tube along which constrictions pass. The contents of the fundus are squeezed into the tube, and the tube and antrum are slowly cleared of food by the waves of constriction. The pylorus does not open at the approach of every wave, but only at irregular intervals. The arrival of a hard morsel causes the sphincter to close, thus materially interfering with the passage of the already liquefied food.

Space is lacking for further extracts from this valuable investigation; but we must add, in conclusion, that Mr. Cannon finds the contents of the fundus — the "active reservoir" — alkaline for an hour or more after food is taken. It is most probable that a considerable conversion of the starches into sugar takes place here during this time.

NEWER CONTRIBUTIONS TO OUR KNOWLEDGE OF THE ACTION OF IRON.

In a recent number of the *Zeitschrift für physiologische Chemie* a contribution to the discussion of the therapeutical availability of iron is made by E. Häusermann, a pupil of G. v. Bunge and a student in his laboratory at Bâle. During the past two years a certain amount of experimental evidence has been brought forward by various observers (Woltering, Gaule, Hall, Hochhaus and Quincke and Kunkel) to show that iron may be given to animals mixed with their food and be absorbed by them. This is in general opposed to the view advocated by Bunge and others that iron in the form of the ordinary compounds is not made use of by the animal body but must be presented in some peculiar organic "hematogenous" form to be absorbed and become a portion of the blood (hemoglobin). The article before us, in which obviously the voice of Bunge is heard although the pen is that of Häusermann, points out that in all these experiments, with the exception of Kunkel's, the doses of iron were large, much larger in fact than may be used for man without causing disturbances of the digestive tract. The real question is whether small amounts of iron given to animals manifest any influence on the iron content of the body or more particularly on the quantity of hemoglobin, since the writer admits, and this is apparently a recent concession, that iron may be *absorbed* but doubts if it be *assimilated*. The experiments of Kunkel are held to be inconclusive on account of their small number.

Häusermann then proceeds to report and analyze his own experiments made on young rats, rabbits, and dogs. Some years ago Bunge had shown that new-born animals have just about enough iron to carry them through the ordinary period of milk diet. As milk contains only a very small amount of iron it was proposed to use a prolonged milk diet as a means of producing anemia and of testing the efficiency of iron preparations when added to such food. In accordance with this plan Häusermann carefully isolated his animals after

¹ We have not been able to find the medical literature of this case in time for the present issue.

being suckled for a few weeks, and fed them on milk alone or where practicable on a mixture of milk and rice. He had determined the amount of iron in rice to be even smaller than in milk. Other animals of the same litter were fed on the same material with the addition of small amounts of ferric chloride; in a few instances hemoglobin was used. From some litters it was also possible to form a group to be fed on the natural food of the animals. After a certain period of this form of feeding the animals were killed by ether, the skin and digestive tract were removed and aqueous extracts were made of the rest of the body and in these the hemoglobin was determined by a colorimetric method. This was then calculated in terms of the body weight after removal of the pelt and intestine. These structures were left out of the account to avoid certain sources of error to which Bunge has called attention. In the rat experiments the amount of iron in the extract was also determined.

If we leave out the details of weight and some other matters, the tables for the rats may be given in outline as to results as follows:

YOUNG RATS.

HEMOGLOBIN IN ONE THOUSAND PARTS BODY WEIGHT.

	Litter I.	Litter II.	Litter III.	Litter IV.
Milk diet + iron	4.13 3.43 4.43 3.90 [3.97]	4.10 5.69 • [4.89]	4.46 5.42 [4.93]	5.76 5.52 6.16 [5.81]
Milk diet alone	6.14 5.10 3.73 4.96 [4.98]	•••• 2.55 2.35 [2.45]	•••• 3.15 •••• •••• [5.23]	•••• 4.16 5.55 5.98 [5.23]
Mixed diet	•••• •••• •••• ••••	5.80 6.51 [6.15]	8.29 •••• •••• ••••	•••• •••• •••• ••••

Häusermann notes that the variations in the amount of hemoglobin are considerable, and calls attention to the very large figures for the rats fed on a mixed natural food. He is, however, disposed to belittle the favorable figures found in the iron experiments. We have taken the trouble to calculate the mean value of the hemoglobin in each group, and have placed it in brackets in the table above. It will thus be seen that in three litters these values indicate that the iron has helped the formation of hemoglobin. Still more striking is the mean value of the hemoglobin for all the rats in each form of experiment. Calculating this, we find that eleven rats on a milk diet with iron had on an average 4.82 grammes hemoglobin for one thousand grammes body weight, while ten rats on a milk diet without iron averaged 4.37 grammes. The corresponding value for the three rats on a mixed diet with no extra iron is 6.87 grammes. Attention is also called by the writer to the large amounts of iron in the extracts and to the fact that the quantities are in many cases much greater for the iron-fed animals. This

leads to the admission that iron is really absorbed in these experiments but is not assimilated. Perhaps it ought to suggest that the colorimetric determination of the hemoglobin is not in accord with the quantitative determination of the iron. We have taken the trouble to recalculate the iron values in terms of body weight of the animals. The results are very interesting since for each litter the value, as determined by titration, is larger for the iron-fed group. The mean values for all the experiments also seem instructive. In the iron-fed series we have .0855 milligrammes of iron per gramme of body weight, the value becoming .0610 for the series fed only on a milk diet and .0827 for the much smaller series with a mixed diet. Calculated for the iron as determined by a weighing method the figures become .1010, .0834 and .0942 respectively.

In the rabbit experiments only the hemoglobin is noted and no special determination of the iron reported. Unfortunately there is but one experiment with a mixed or normal diet. The table abbreviated as before is as follows:

YOUNG RABBITS.

HEMOGLOBIN IN ONE THOUSAND PARTS BODY WEIGHT.

	Litter I.	Litter II.	Litter III.
Milk diet + iron	5.66 4.89 4.54 [5.03]	4.35 5.56 4.34 [4.75]	6.87 5.68 5.92 [6.16]
Milk diet. No iron	3.68 5.06 [4.37]	4.38 3.87 [4.37]	4.71 5.39 3.87 [4.66]
Mixed diet	••••	••••	9.03

The mean value for all the iron-fed rabbits, nine in number, is 5.81; that for the seven with no iron is 4.49. So far as it goes this result speaks in favor of the iron treatment although the influence of proper food is far greater as shown by the single experiment recorded.

The investigations made with puppies also favor the view that iron may be helpful although not the best means of increasing the hemoglobin. Here, too, no special determination of the iron is made. The condensed table for hemoglobin is as follows:

YOUNG DOGS.

HEMOGLOBIN IN ONE THOUSAND PARTS BODY WEIGHT.

	Group I.	Group II.	Group III.
Milk diet + iron	7.05 10.04 [8.54]	10.57 •••• •••• [8.13]	8.28 7.99 •••• [8.13]
Milk diet. No iron	4.00 6.58 11.52 [7.37]	6.61 5.14 [5.87]	•••• 5.34 •••• ••••
Mixed diet	•••• •••• ••••	10.00 •••• ••••	7.55 8.21 [7.88]

The mean value for the five iron-fed dogs is 8.79, for six on a milk diet 6.58, while for the three on a normal diet it is 8.59.

Häusermann's final general statement as to the value of iron is, freely translated, this: "But even if we admit that iron is made use of for hemoglobin formation this conclusion has no practical value since all our experiments on rats, rabbits, and dogs are in accord in showing that animals assimilate at least as much hemoglobin [*Hämoglobin assimiliren*] or even more from their normal food, which is rich in iron, than from food deficient in iron to which an organic iron is added. When, then, an anemic person is getting proper food there is no necessity for sending to the apothecary for iron to add to this food as material for the hemoglobin formation." An examination of our average values made up from the figures of this investigator suggests that even this cautious and tentative statement may need further modification.

A valuable table is also given showing the iron content of a large variety of food stuffs—nearly sixty in number—rather more than half being new analyses made by the author. This list throws light on the usefulness of food materials which have commonly received a rather stepmotherly treatment at the hands of the physiologist and the professional manipulator of diet tables. From this point of view, too, the article must be considered a considerable addition to our knowledge of nutrition. Cloetta has also made use of the method suggested by Bunge for studying the iron question. His results we hope to consider at another time.

MEDICAL NOTES.

ST. LOUIS LARYNGOLOGICAL AND OTOLOGICAL SOCIETY.—The St. Louis Laryngological and Otolological Society was organized on December 27th. Dr. J. C. Mulhall was elected President, and Dr. F. M. Rumbold, Secretary, for the year 1898. Meetings will be held monthly.

PLAGUE AT BOMBAY.—According to late reports from Bombay (December 29, 1897) the plague has broken out afresh. In the Mandvie district the inhabitants are seeking safety in flight. To-day there were 54 new cases and 37 deaths. The total plague returns from Bombay up to date are 14,257 cases and 11,882 deaths.

CONGRATULATIONS TO SANARELLI.—The Italian Society of Internal Medicine, recently in session in Naples, sent a letter of congratulation to Dr. Sanarelli, "who, in distant lands, while in peril of his life, made such memorable discoveries concerning the etiology of yellow fever, thereby winning for himself imperishable honor and giving to his native land a cause for legitimate pride."

A NAVAL HOSPITAL CORPS RECOMMENDED.—It is reported from Washington that Secretary Long has sent to the House Naval Committee a draft of

a bill "To organize a Hospital Corps of the United States Navy, to define its duties and regulate its pay." The secretary is said to make this recommendation on the basis of the satisfactory work done by the Army Hospital Corps and the fact that a similar organization in the navy could be accomplished and maintained with practically no additional expense to the navy. The proposed Naval Hospital Corps would be located at Portsmouth, N. H.; Chelsea, Mass.; Newport, R. I.; New York City; Philadelphia; Washington, D. C.; Norfolk, Va.; Pensacola, Fla.; Mare Island, Cal., and Yokohama, Japan.

THE RUSSIAN PLAGUE COMMISSION.—The Russian Plague Commission, according to the *Medical Record*, have not been able to satisfy themselves of the popular belief that plague is spread by rats and grain. They also find that, according to their experience, neither Yersin's nor Haffkine's serum conferred any lasting immunity, a dose of ten cubic centimetres of the former or five cubic centimetres of the latter making a monkey immune for only ten days or two weeks. The injection of a fresh agar culture, kept at a temperature of 60° C. for one hour, produced immunity more slowly, but the protection so obtained was more lasting. The curative effects of the serum were better, yet they could hardly be regarded as entirely satisfactory when it is stated that forty per cent. of the cases treated by Yersin's serum terminated fatally. Apparently, therefore, we cannot yet rely upon serum treatment to repress an epidemic of the plague, and so we must still look to the much abused quarantine to preserve a country threatened with a visitation of this reviving enemy of the human race.

BOSTON AND NEW ENGLAND.

ACUTE INFECTIOUS DISEASES IN BOSTON.—For the two weeks ending at noon, January 5, 1898, there were reported to the Board of Health, of Boston, the following numbers of cases of acute infectious disease: diphtheria 88, scarlatina 59, typhoid fever 10, measles 45.

A BOSTON CENTENARIAN.—Mr. Joseph Davis Jones recently celebrated his one hundredth birthday at the Home for Aged Men, on Springfield Street, Boston.

DEATH OF A VERMONT CENTENARIAN.—Mrs. Abbey Wachai, known all over Vermont as "Aunt Abbey," died at her home, at Groton, Vt., recently, aged one hundred years, five months. Mrs. Wachai had twelve children, thirty-eight grandchildren, nine great-grandchildren and two great-great-grandchildren.

ONE TYPE OF PENSION CLAIMANTS.—Here is another illuminating pension story: A Boston physician who formerly occupied the two positions of medical examiner for pensions and for positions in the Boston police and fire departments was called upon to examine an applicant for appointment to the police force. The applicant testified that he was able-bodied in every respect, and had never had a sick ~~day~~ his

life. Subsequently the same man appeared before the board of medical examiners for pensions as an applicant for an increase of his pension, and he testified that he was a physical wreck and incapacitated for work on account of his physical infirmities, resulting from his services in the war. His identity with the man who had a short time previously applied for a police appointment was established and neither application was recommended. What might have happened had he not indulged in this duplicity need not be considered. The facts here recited show how little dependence is to be placed on the testimony of some people who look for support at the public expense. — *Boston Herald*.

FAILURE TO REPORT CONTAGIOUS DISEASES IN MASSACHUSETTS. — The law which required cities and towns to report to the State Board of Health any cases of small-pox was amended in 1893 so as to include "any other diseases dangerous to the public health." Notwithstanding this amendment, the cities of Chicopee and Holyoke, nineteen large towns in various parts of the State, and a considerable number of smaller places, have not reported a single contagious disease during the years 1896 and 1897. The State Board of Health cannot get at the actual number of cases of contagious disease in the State when over one hundred places refuse figures. The law of 1893 fixed a penalty, which was that if the Board of Health of a city or town refused or neglected to furnish the notice, it should forfeit its claim upon the State for reimbursement where it had expended money for a person, ill with such a disease, who had no money or no settlement. In all such cases the money is paid upon the approval of the bill by the State Board of Lunacy and Charity. The Board of Health has now arranged with the Board of Lunacy and Charity to be notified whenever such a claim comes in from a city or town which does not furnish notices, and the auditor will be notified in turn of such neglect before the claim is paid. There were 21,320 cases of contagious disease properly reported to the Board last year.

NEW YORK.

CHRISTMAS SERVICE BY TELEPHONE. — The entire Christmas service, including music, prayers and sermon, at the Roman Catholic Church of the Assumption at Norristown, N. J., was transmitted by telephone to the patients of All Souls' Hospital, a mile distant, a receiver being placed by the bedside of each patient.

THE LOWEST MORTALITY ON RECORD. — The complete record of the mortality of the city for the year ending at noon on December 31st, as presented by the Board of Health to the Mayor on the afternoon of that day, shows the lowest death-rate recorded in the history of New York. The total number of deaths was 38,857, which in an *estimated* population of 1,990,562 for the year, gives an annual death-rate of 19.52 per thousand inhabitants. In 1896 the number of deaths was 41,432 and the death-rate 21.53; in

1895, 43,420, and the death-rate 23.11; in 1894, 41,175, and the death-rate 22.76; in 1893, 44,436, and the death-rate 25.30; and in 1892, 44,329, and the death-rate 25.95. Thus, while the population five years ago was 1,708,124, or 282,438 less than in 1897, in the latter year there were actually 5,472 fewer deaths than in 1892. Although there can be no question that the unusually cool summer had some effect in diminishing the mortality of the past year, the remarkably low death-rate shown is on the whole very gratifying.

MAYOR VAN WYCK'S MEDICAL APPOINTMENTS. — Among the appointments made for positions in the administration of the Greater New York by Mayor Van Wyck are the following: President of the Board of Health, salary \$7,500, Nathan Strauss; Commissioners of the Board of Health, salary \$6,000, Drs. William T. Jenkins and John B. Cosby; Chief of Bureau of Municipal Statistics, salary \$3,500, Dr. John T. Nagle; Commissioner of Public Charities for the Borough of Richmond (Staten Island), salary \$2,500, Dr. M. B. Feeny. Mr. Strauss is well known for his philanthropy in the establishment of depots for the sale of coal to the poor at cost prices and for the distribution of sterilized milk. Dr. Jenkins is the former health officer of the Port of New York, and Dr. Cosby was graduated from the medical department of Washington University, Baltimore, in 1873 and from Bellevue Hospital Medical College in 1875. He is a member of the County Medical Society. Dr. Feeny, who up to January 1st was Chairman of the Board of Supervisors of Richmond County, was a candidate for President of the Borough of Richmond in the recent election. The vote proved a very close one, and as both the candidates for the position claimed to have been elected, the matter was taken to the courts, and has not yet been decided. Dr. Nagle, who served for a long term of years in the New York Health Department and was finally retired at his own request, was the first official of the department to receive a pension for his services.

Miscellany.

THE SENATE BILL FOR PREVENTION OF CRUELTY TO ANIMALS IN DISTRICT OF COLUMBIA.

EXTRACT from *The Congressional Record* of December 15, 1897:

MR. GALLINGER: Mr. President, while I think it is a vicious habit that the Senate has got into of making certain bills the unfinished business several months in advance, I do not rise to object to the request made by the Senator from South Dakota, but simply to say that during the last Congress, from the Committee on the District of Columbia, I reported unanimously a bill for the further prevention of cruelty to animals in the District of Columbia. Upon solicitation from several Senators, saying that they were receiving letters from their constituents protesting against the passage of the bill, I allowed it to drift along, and did not ask for the consideration of it. On the 13th

of May, 1897, the bill was again reported, and is on the Calendar. I simply rise to say that, while I shall not object to the request of the Senator from South Dakota — because I never object to his requests — at an early day I shall move to take up that bill, which is Senate Bill 1063, Calendar No. 136. I trust that when I ask the consideration of the bill it may not be objected to, but that that matter, which to my mind is extremely important — and a controverted matter, I will say, on the part of physicians, scientists and humanitarians — may have a fair discussion, and that we may have a vote of the Senate deciding whether or not that bill shall pass this body. That is all I care to say.

Correspondence.

ABUSE OF MEDICAL CHARITY.

BOSTON, January 3, 1898.

MR. EDITOR: Much has been written recently on this subject in the medical journals, and even the lay press has devoted much attention to it. Judging from these articles, we are led to believe that a certain class of unworthy people in the community (many of them well-to-do) are entirely responsible. From a large experience in general practice and hospital work, I believe that the profession is to blame. I would give the causes of this abuse in order of importance, as follows:

(1) The general practitioner who refers cases to out-patient departments of hospitals and dispensaries, either because he wishes to shift responsibility of the case, or because his means are such that he does not require this practice.

(2) The specialist who charges exorbitant fees, or those whose fees are too high (although apparently moderate) for the working-classes.

(3) The class of people who attend clinics because of ignorance. They have the prevailing idea that specialists always charge large fees. There is also a class of people who believe that more skilful service can be obtained there than outside. These people are honest and are willing to pay physicians for services.

(4) Unworthy applicants. This class is small.

REMEDIES FOR ABUSE.

(1) The general practitioner should refer only the poor to clinics; he should not refer a case to obtain a diagnosis; nor simply to get rid of what may be, to him, undesirable practice. The case, unless poor, should be referred to some young practitioner or specialist. The medical student should receive a better training on minor surgery and minor ailments of branches, such as ophthalmology, otology, gynecology, etc.

(2) The young specialist should reduce fees to conform with the means of those in moderate circumstances. His services to this class are no more valuable than those of the general practitioner of this city, who receives on an average one or two dollars for office fees. More young men should take up special branches as auxiliary to general work, and thereby fulfil the demand of the people.

(3) Investigation should be made at clinics by one appointed for this special duty. He should give all necessary information to people who come there from their ignorance, believing that they cannot get the same skill at moderate cost outside. The objects of the clinics, namely, to give medical aid to the poor and destitute, can be also explained to them.

(4) Unworthy applicants can be rejected by this system of investigation.

From my experience I would say, that the majority of physicians doing out-patient work are honest, able, earnest men, who have no desire to interfere with their fellow-practitioner; they give much time to their work, and it is unreasonable to expect them to investigate the cases. The fact that many cases are referred by their fellow-practi-

tioners to aid in diagnosis shows their ability is held in high esteem.

By realizing the causes of abuse and applying the remedies, we can prevent most of the imposition.

Had I the time, I might elaborate by giving numerous examples to illustrate the importance of the causes which I have enumerated. Often the men who cry the loudest against the imposition of medical charity are the ones who send cases, especially those of minor surgery, to the out-patient departments. Many worthy persons have been started in their career of patronizing hospitals by the doctor. In fact, I think the largest number of unworthy cases treated can be traced directly or indirectly to the profession.

Very truly yours, M. D.

RECORD OF MORTALITY

FOR THE WEEK ENDING SATURDAY, DECEMBER 25, 1897.

Cities.	Estimated population.	Reported deaths in each.	Deaths under five years.	Percentage of deaths from					
				Infectious diseases.	Acute lung diseases.	Diarrheal diseases.	Typhoid fever.	Diphtheria and croup.	
New York . .	1,868,060	650	258	11.25	19.80	1.80	1.05	4.05	
Chicago . .	1,619,226	—	—	—	—	—	—	—	
Philadelphia .	1,214,256	396	106	13.25	14.00	1.00	3.75	6.75	
Brooklyn . .	1,160,000	318	—	10.85	12.09	1.55	1.24	6.51	
St. Louis . .	570,000	184	51	10.26	13.50	1.08	1.62	7.02	
Baltimore . .	550,000	174	56	13.34	8.70	1.16	3.48	6.38	
Boston . .	517,732	175	48	10.26	18.24	.57	1.71	5.13	
Cincinnati . .	405,000	102	—	7.92	14.85	2.97	3.96	—	
Cleveland . .	350,000	91	24	8.72	11.99	—	4.36	4.36	
Pittsburg . .	285,000	94	31	16.96	12.72	—	6.36	3.18	
Washington .	277,000	—	—	—	—	—	—	—	
Milwaukee . .	275,000	—	—	—	—	—	—	—	
Nashville . .	105,050	25	7	12.00	20.00	—	4.00	4.00	
Worcester . .	105,050	29	10	10.32	17.20	—	3.45	6.90	
Fall River . .	95,919	29	16	3.45	34.48	—	—	3.45	
Lowell . .	87,193	41	15	4.88	14.64	—	—	4.88	
Cambridge . .	86,812	20	6	5.00	20.00	—	—	—	
Lynn . .	65,220	15	—	6.66	6.66	—	6.66	—	
Charleston . .	65,165	—	—	—	—	—	—	—	
New Bedford .	62,416	20	6	5.00	10.00	—	—	—	
Lawrence . .	55,510	15	4	13.33	13.33	—	5.88	13.33	
Springfield .	54,790	22	9	20.75	4.15	8.30	8.30	—	
Holyoke . .	42,364	—	—	—	—	—	—	—	
Portland . .	40,000	—	—	—	—	—	—	—	
Salem . .	36,062	10	—	—	—	—	—	—	
Brockton . .	35,853	2	0	—	—	—	—	—	
Malden . .	32,894	13	0	15.38	15.38	—	7.69	7.69	
Chelsea . .	32,716	12	5	8.33	—	—	—	—	
Haverhill . .	31,406	12	1	16.66	8.33	—	—	—	
Gloucester . .	29,775	—	—	—	—	—	—	—	
Newton . .	28,990	3	0	—	—	—	—	—	
Fitchburg . .	28,392	8	3	—	25.00	—	—	—	
Taunton . .	27,812	10	1	—	10.00	—	—	—	
Quincy . .	22,562	—	—	—	—	—	—	—	
Pittsfield . .	21,891	—	—	—	—	—	—	—	
Waltham . .	21,812	9	0	22.22	22.22	—	—	22.22	
Everett . .	21,575	—	—	—	—	—	—	—	
Northampton .	17,448	—	—	—	—	—	—	—	
Newburyport .	14,794	2	1	50.00	—	—	—	50.00	
Amesbury . .	10,920	—	—	—	—	—	—	—	

Deaths reported 2,572; under five years of age 677; principal infectious diseases (small-pox, measles, diphtheria and croup, cerebro-spinal meningitis, diarrheal diseases, whooping-cough, erysipelas and fevers) 307, acute lung diseases 389, consumption 285, diphtheria and croup 148, typhoid fever 59, diarrheal diseases 32, scarlet fever 20, measles 17, whooping-cough 14, cerebro-spinal meningitis 12, erysipelas 5.


From scarlet fever New York 8, Philadelphia and Brooklyn 3 each, Boston 2, St. Louis, Baltimore, Pittsburg and New Bedford 1 each. From measles New York 9, Pittsburg 4, Brooklyn 2, Philadelphia and Nashville 1 each. From whooping-cough New York 4, Philadelphia 3, Baltimore and Pittsburg 2 each, Cincinnati, Springfield and Haverhill 1 each. From cerebro-spinal meningitis New York 6, Boston 3, Worcester 2, Chelsea 1.

In the thirty-three greater towns of England and Wales, with an estimated population of 10,992,524, for the week ending December 18th, the death-rate was 20.6. Deaths reported 4,352; acute diseases of the respiratory organs (London) 457, measles 247, diphtheria 94, whooping-cough 93, fever 58, scarlet fever 42, diarrhoea 27.

The death-rates ranged from 14.1 in West Ham to 27.9 in Norwich; Birmingham 24.0, Bradford 20.3, Bristol 21.6, Cardiff 14.4, Gateshead 21.2, Huddersfield 17.5, Leeds 23.0, Leicester 20.7, Liverpool 23.8, London 21.0, Manchester 19.6, Newcastle-on-Tyne 18.2, Nottingham 16.6, Sheffield 22.8, Swansea 20.3.

METEOROLOGICAL RECORD

For the week ending December 25th, in Boston, according to observations furnished by Sergeant J. W. Smith, of the United States Signal Corps:—

Date.	Baro- meter	Thermom- eter.			Relative humidity.			Direction of wind.		Velocity of wind.		We'th'r. °		Rainfall in inches.
	Daily mean.	Daily mean.	Maximum.	Minimum.	8.00 A. M.	8.00 P. M.	Daily mean.	8.00 A. M.	8.00 P. M.	8.00 A. M.	8.00 P. M.	8.00 A. M.	8.00 P. M.	
S...19	30.31	18	23	14	69	68	68	N.W.	N.W.	18	19	C.	C.	.16
M...20	30.24	22	30	13	56	66	61	N.W.	S.	12	8	O.	O.	
T...21	29.76	28	34	23	94	82	88	N.W.	N.W.	15	8	N.	N.	
W...22	29.82	25	32	18	66	89	78	N.W.	S.W.	12	7	O.	O.	
T...23	29.59	28	33	23	84	65	74	N.W.	W.	12	17	F.	F.	
F...24	29.94	18	23	13	47	45	46	W.	W.	14	16	C.	C.	
S...25	30.20	19	29	9	44	62	53	W.	S.W.	12	13	C.	C.	
														

* O., cloudy; C., clear; F., fair; G., fog; H., hazy; S., smoky; R., rain; T., threat-
ening; N., snow. † Indicates trace of rainfall. — Mean for week.

OFFICIAL LIST OF CHANGES IN THE STATIONS AND DUTIES OF OFFICERS SERVING IN THE MEDICAL DEPARTMENT, U. S. ARMY, FROM DECEMBER 25, 1897, TO DECEMBER 31, 1897.

Leave of absence for one month, to take effect on or about January 4, 1898, with permission to apply for an extension of two months, is granted MAJOR EGON A. KOEPPER, surgeon, Fort Crook, Neb.

OFFICIAL LIST OF CHANGES OF STATIONS AND DUTIES OF COMMISSIONED OFFICERS OF THE UNITED STATES MARINE-HOSPITAL SERVICE FOR THE SEVEN DAYS ENDING DECEMBER 23, 1897.

CARTER, H. R., surgeon. To rejoin station at Chicago, Ill., temporarily. December 20, 1897.

NYDEGGER, J. A., passed assistant surgeon. Granted leave of absence for seven days from January 1, 1898. December 20, 1897. Upon expiration of leave of absence to report to commanding officer at New Orleans, La., for temporary duty. December 20, 1897.

CLARK, TALIAFERO, assistant surgeon. To proceed, on or about January 2, 1898, to South Atlantic Quarantine Station and assume temporary command of Service. December 20, 1897.

EXAMINATION OF CANDIDATES FOR THE MARINE-HOSPITAL SERVICE.

WASHINGTON, D. C., December 24, 1897.

A board of officers will be convened at Washington, D. C., January 25, 1898, for the purpose of examining for admission to the grade of Assistant Surgeon in the United States Marine-Hospital Service.

Candidates must be between twenty-one and thirty years of age, graduates of a respectable medical college, and must furnish testimonials from responsible persons as to character.

The following is the usual order of the examination: (1) physical, (2) written, (3) oral, (4) clinical.

In addition to the physical examination candidates are required to certify that they believe themselves free from any ailment which would disqualify for service in any climate.

The examinations are chiefly in writing and begin with a short autobiography by the candidate. The remainder of the written exercise consists in examination on the various branches of medicine, surgery and hygiene.

The oral examination includes subjects of preliminary education, history, literature and natural sciences.

The clinical examination is conducted at a hospital, and when practicable, candidates are required to perform surgical operations on the cadaver.

Successful candidates will be numbered according to their attainments on examination, and will be commissioned in the same order as vacancies occur.

Upon appointment the young officers are, as a rule, first assigned to duty at one of the large marine hospitals, as at Boston, New York, New Orleans, Chicago or San Francisco.

After five years' service, Assistant Surgeons are entitled to examinations for promotion to the grade of Passed Assistant Surgeon.

Promotion to the grade of Surgeon is made according to seniority, and after due examination as vacancies occur in that grade. Assistant Surgeons receive sixteen hundred dollars, Passed Assistant Surgeons two thousand dollars, and Surgeons

twenty-five hundred dollars a year. When quarters are not provided, commutation at the rate of thirty, forty or fifty dollars per month, according to grade, is allowed.

All grades above that of Assistant Surgeon receive longevity pay, ten per centum in addition to the regular salary for every five years' service up to forty per centum after twenty years' service.

The tenure of office is permanent. Officers travelling under orders are allowed actual expenses. For further information, or for invitation to appear before the board of examiners, address:

WALTER WYMAN,
Supervising Surgeon-General, U. S. Marine-Hospital Service.

TALKS ON THE HISTORY OF MEDICINE.

Dr. David Hunt, of Boston, will give four informal lectures on "The History of Medicine," by invitation of the Harvard Medical Alumni Association. The lectures will be given at the Harvard Medical School on successive Thursday evenings in January, beginning January 6th at 8 p. m. Members of the profession and students of the Harvard Medical School are cordially invited to attend.

J. S. STONE, M.D., Secretary.

SOCIETY NOTICES.

BOSTON SOCIETY FOR MEDICAL IMPROVEMENT.—The annual meeting of the Society will be held at the Medical Library, 19 Boylston Place, on Monday evening, January 10th, at 8 o'clock.

Dr. J. W. Farlow will read: "On Some Forms of Adenoid Disease, which are often Overlooked, and on Conditions which may Simulate Adenoid Disease."

Drs. Paul Thorndike and J. B. Ogden: "Remarks on Cystinuria, with Report of a Case of Cystin Calculus in the Male Bladder."

At nine o'clock the annual election of officers will be held.

JAMES G. MUMFORD, M.D., Secretary, 197 Beacon St.

BOSTON MEDICAL SOCIETY.—At a regular meeting of the Society the following officers were elected: Dr. S. Goodman, President; Dr. M. Gerstein, Secretary; Dr. V. Bychower, Treasurer.

The subject of "Medical Abuses" was discussed by various members.

M. GERSTEIN, M.D., Secretary.

RECENT DEATHS.

GEORGE CARROLL DOLLIVER, M.D., M.M.S.S., died in Arlington, December 30, 1897, aged twenty-eight years.

ERASTUS CALHOUN COY, M.D., M.M.S.S., medical examiner for central Franklin County for twenty years, died at his home in Turner's Falls, December 28, 1897, aged sixty-five years. He was born in Colerain July 25, 1831. His first practice was in Peru, in this State. Then he lived in Worthington for five years and went to Turner's Falls in 1870. Dr. Coy was a member of the Board of Health for Montague from its organization till last year. He was a member of the lower branch of the Legislature in 1894.

BOOKS AND PAMPHLETS RECEIVED.

Ueber die Absorption von Fremdkörpern durch die Gaumen-tonillen des Menschen mit Bezug auf die Entstehung von infectiösen Processen. Von J. L. Goodale, A. M., M.D., Assistant für Halskrankheiten im Massachusetts General Hospital und im Boston Children's Hospital. (Aus dem Laboratorium des Massachusetts General Hospital.) Sonder-Abdruck aus dem Archiv für Laryngologie, 7 Bd., 1 Heft.

A Practical Treatise on Diseases of the Skin. By John V. Shoemaker, M.D., LL.D., Professor of Skin and Venereal Diseases in the Medico-Chirurgical College and Hospital of Philadelphia, Physician to the Philadelphia Hospital for Diseases of the Skin, etc. Third edition, revised and enlarged, with chromogravure plates and other illustrations. New York: D. Appleton & Co. 1897.

Sopra i Resti di un Coccodrillo Scoperti Nelle Ligniti Mioceniche di Montebamboli (Maremma Toscana). Nota Paleontologica del Dott. Giuseppe Ristori, Eseguita nel Gabinetto di Geologia e Paleontologia del R. Istituto di Studi Superiori in Firenze. Anno 1890. Pubblicazioni del R. Istituto di Studi Superiori Pratiche di Perfezionamento in Firenze, Sezione di Scienze Fisiche e Naturali. Firenze: Col Tipi dei Successori le Monnier. 1890.

Sull'origine e Decorso dei Peduncoli Cerebellari e Sui Loro Rapporti Cogli Altri Centri Nervosi. Pel Dott. Vittorio Marchi, già aiuto dei professori Golgi, Luciani e Tamburini Libero docente d'Istologia. Memoria Premiata del R. Istituto Lombardo di Scienze e Lettere. Con 5 tavole cromolitografiche. Pubblicazioni del R. Istituto di Studi Superiori Pratiche di Perfezionamento in Firenze, Sezione di Scienze Fisiche e Naturali. Firenze: Col Tipi dei Successori le Monnier. 1891.

Original Articles.

REPORT ON PHYSICAL TRAINING IN THE BOSTON PUBLIC SCHOOLS.¹

BY WALTER CHANNING, M.D., BROOKLINE, MASS.

At a meeting of the Boston Society for Medical Improvement which was held in November, 1896, on motion of Dr. Walter Channing, it was resolved: "That this Society is in sympathy with the effort to secure the incorporation of a more thorough course of physical training in the course of study in the Boston public schools, through the action of the School Committee, and that a committee of three members of this Society be appointed by the president to report at an early day what steps are best calculated to promote favorable action by the School Committee." The president appointed as members of this committee Drs. W. Channing, E. H. Bradford and Wm. M. Conant.

The committee visited a number of schools of the primary, grammar and high-school grades in the city proper, and in the outlying districts of Dorchester, Roxbury, Charlestown, Allston and Brighton.

In the beginning it may be said that the committee had no definite idea of just how much or how little attention was given to physical training in the Boston public schools. If they had any opinion it was, perhaps, that the character of the work was rather meagre and unsatisfactory. They were aware of the earlier attempts that had been made, and of their final failure and collapse, and they were somewhat sceptical as to what they would now actually find.

It gives them pleasure to say that they were agreeably disappointed from the start, for they soon discovered that physical training as now being given under the direction of the present department to the public school children was founded on solid scientific principles in which unity, harmony and progression were apparent, and was being practically and successfully applied under a system of thorough, skilful and careful organization.

To lay out a plan on paper for an ideal system, and to put it into operation where the conditions are ideal, is not so difficult a matter; but to graft on to an institution of such conservative traditions as the Boston public-school system a branch essentially new, and at first sight not of apparent direct relationship, is a task of considerable magnitude. However good in itself, it must fit in with other subjects, and help and stimulate, rather than antagonize. It must prove its fitness not only as a part of general education, but as a positive educative force, before it can be regarded as having earned for itself a place in the school curriculum.

We believe that so far as physical training has been developed in the Boston schools it has been along these lines. The seed has been deeply planted; the roots of the tree have taken firm hold. Hand-in-hand with the other branches taught it is working harmoniously and beneficially. Everywhere the committee have gone they have been gratified to find the interest manifested by teachers and scholars. There may have been exceptions, but only frequently enough to prove the rule.

It is especially gratifying to find how thoroughly and carefully the teachers have taken hold. No system, however good, could succeed without this co-op-

eration, and we must regard it as one proof of the excellence of the present system that this interest has been aroused. One evident reason why so much good work has been accomplished with the pupils is that they are reacted on by and share in the enthusiasm of the teachers. The committee are convinced that all the teachers of the schools must themselves be able to teach physical training if it is to have enduring vitality. They must feel it as a part of their personal work, and not something outside of, and alien to, themselves. Specialists to oversee and supervise there must necessarily be, but these should, when possible, be taken out of the regular school corps, and be experienced in the mental training and care of children. They will make all the better teachers of physical training if they have first had the other kind. Probably in every school one of the regular teachers, with a fondness for physical training, can ultimately be detailed to look after that branch and see not only that by itself it receives proper attention, but also that its harmonious correlation with other subjects is carefully preserved. It stands to reason that this important matter will best be understood by an all-round teacher. The teachers themselves will naturally need the instruction of the best specialists, who, however, should never overlook the pedagogical side of the work.

The present system, as understood by the committee, recognizes the need of regular instruction in physical training from the beginning of school life. To be of the greatest service it must begin early and be continued regularly each year to the end. Every year adds to its beneficial effects, both on body and mind, and it is not too much to say that it will have lasting influence on the health of the organism. Furthermore, we may look for the establishment of improved muscular co-ordination, which must result in more accurate and careful habits of mental action. It must not be forgotten that in as far as we are training the body to quick, active and regular responses, we are at the same time training the mind in a similar manner.

The Swedish system, as adapted for use in the schools, offers a great variety and diversity of exercises, and further enlivened with gymnastic games is unsurpassed for school work. But the committee wish especially to call attention to the need of apparatus in the higher grades of the work. The word "apparatus" formerly suggested many expensive appliances, but it is one of the very great advantages of the Swedish system that it requires comparatively little apparatus, and that of a simple and inexpensive character. Little by little the effort should be made to introduce some of this apparatus into the higher schools, until ultimately every boy and girl entering a high school can have the chance to make use of it. It is to be hoped, of course, that all new school buildings will have a large, well-ventilated and simply-finished hall for assembly purposes. In such a hall a few pieces of movable apparatus can be placed, occupying little room and not in any way detracting from its attractiveness. In the opinion of the committee, no better expenditure of money could be made for the health of the school children and for the promotion of the best interests of physical training than to introduce a few such pieces of Swedish apparatus into many of the present good-sized high or grammar school halls. The outlay in each school would be surprisingly small.

The Girls' Normal School may be especially mentioned as quite lacking in all facilities for teaching

¹ Read before the Boston Society for Medical Improvement, October 18, 1897, by Dr. Channing, as Chairman of the Committee appointed in 1896.

physical training. The girls at the school, who are to go out as teachers, and have had perhaps several years of special instruction, are here deprived of every opportunity for work, except on the most meagre scale. This is in every sense deplorable, for it disheartens, and in some cases interferes with the career of girls who might become valuable specialists, and it also reacts unfavorably on their physical health. For the good of the schools, the normal school should, above all others, contain a large, well-equipped gymnasium, where all the girls may receive thorough and full instruction. The normal school building appears to be quite unfitted for its present purposes, and the committee very much hope the city may speedily have a better one. It is pathetic and depressing to see such a fine body of young women working under such serious disadvantages.

In nearly all the schools visited the gymnastic work is done under serious disadvantages, both from the overcrowded condition of the schools and the narrow and contracted arrangement of the rooms and corridors in all of the old and some of the new buildings. The crowding of the school-rooms is shown by the very narrow aisles between the desks. Most of these were found to be not more than sixteen inches in width, and in a number of schools not more than fifteen inches. It is manifestly impossible for large grammar-school girls and boys to properly go through arm and leg movements which require plenty of room in such a limited space. It is difficult enough for small children, who require less room, but they can manage it after a fashion. In some schools with fairly ample corridors the pupils take some of their exercises in them, which is in every way to be commended, but unfortunately the corridors are too cramped in most of the schools to make this possible.

The committee would suggest the desirability of increasing the width of aisles in all grammar schools to an average of at least twenty inches, and more would be better. This could only be done by removing one row of desks, but it would seem desirable to do this whenever possible, not only to give more room for gymnastics, but also to promote better hygienic conditions. A smaller number of scholars in the school-rooms would be of very obvious advantage. In the primary schools a width of eighteen inches between the desks would be none too much.

The time allowed for gymnastics is at the present sixteen minutes daily. It is to be earnestly hoped that this length of time may in the future be considerably extended, so as to allow for a little work both in the morning and afternoon. It has been proved by Kraepelin and others that mental work is of a decidedly better character if there are periods of rest at certain intervals, and the committee believe that the school children would achieve better mental results if more frequent periods of physical activity could alternate with study periods. They would suggest the period for gymnastics be extended from sixteen to twenty minutes daily, the best use of this time to be arranged for by the director of physical training.

The need of more school buildings must become apparent to any one who visits the Boston schools, and they should be urgently prayed for until the necessity for them is at least recognized. They need not be ornate or palatial, if only they contain large and well-ventilated rooms and ample corridors. Simple and

not costly buildings would be of the greatest utility, if it were possible to erect such. In the meantime the committee would earnestly call attention to an adjunct of every good school, which may often be supplied with poor buildings. Cannot the city furnish grounds which may, for certain hours at least, be used by school children? A considerable part of their physical training can be given them in playgrounds.

Not to speak of outdoor gymnastic work, the number and variety of games, both for boys and girls, has largely increased during recent years. It would be of the greatest advantage if some plan could be thought out which would give all the children, at stated intervals, an opportunity to make use of playgrounds under proper supervision, as part of their regular school work. It would, of course, be most convenient to have these grounds adjacent to the school buildings, but where this is not possible the children could be sent to them at regular intervals.

SUMMARY.

To briefly recapitulate, the following are the chief points to which the committee take the liberty of directing attention:

- (1) The broad, comprehensive, and scientific character of the present system of physical training.
- (2) Its adaptability to the existing requirements of the school children.
- (3) The interest shown by both teachers and pupils.
- (4) The desirability of having all the teachers instructed in physical training, as on them depends the success of the work.
- (5) The desirability of selecting special instructors in physical training from the regular school corps, rather than from specialists inexperienced in general school work.
- (6) The desirability of selecting one teacher as a local representative of the department in each school to supervise and take the responsibility of making the gymnastics a success.
- (7) The due recognition of the importance of progression in the work from the beginning to the end of school life.
- (8) The Swedish system, with the addition of gymnastic games, is the best in regard to variety of exercises.
- (9) The necessity of apparatus of a simple character in high schools, and also in grammar schools to a less extent, if the system is to be adequately applied.
- (10) This apparatus can be placed in a hall without detracting from its attractiveness.
- (11) The lack of all facilities for teaching physical training in the Girl's Normal School, which sends a poorer grade of teachers of this branch into the schools than would be otherwise necessary.
- (12) The importance of obviating this defect by providing for the Normal School girls a well-equipped gymnasium.
- (13) The narrow, contracted aisles in the school-rooms, which probably do not average over sixteen inches in width, not allowing sufficient room for gymnastic exercises.
- (14) The desirability of increasing this width to twenty inches on the average, which could be done by lessening the number of pupils in the room, to their great benefit from a hygienic point of view.
- (15) The shortness of the time now allowed for the gymnastic exercises, which is sixteen minutes.

(16) The importance of increasing it to at least twenty minutes daily.

(17) The urgent need of larger and better playgrounds. New buildings should have ample grounds, but where children are obliged to attend existing schools with inadequate yard space they should, under proper supervision, be regularly taken to large playgrounds, and there have opportunity for exercise.

The members of your committee, as well as representatives of the Boston Homeopathic Association, appeared in June last before the "Joint Committee on Examinations and Hygiene and Physical Training," of the Boston School Board, and discussed the suggestions set forth above, there being entire unanimity as to the wisdom, not only of the changes recommended but others brought out at the hearing, such as those in reference to military drill, for instance.

At the meeting of the Boston School Committee, June 8, 1897, the following report was received:

The Joint Committee on Examinations and Hygiene and Physical Training, after hearing the petitions for an increased amount of physical training in the public schools, beg leave to submit the following brief report:

As the city becomes more densely populated the opportunities for normal and healthy exercise by children become less and less. A generation ago the boys and girls in most parts of the city were within easy reach of open lots, or suburban spaces, where they could play active games; but with the growth of the city this is no longer true, and it has become necessary for the schools to supply a want unfelt in the past.

The Swedish system of free movements in use in the primary schools is excellent as far as it goes, but it ought to be supplemented by a larger amount of physical training. This is still more necessary in the grammar schools, where the free movements alone are far from sufficient for the needs of the older children.

The additional time required cannot wisely be taken from the hours now devoted to study either in the primary or grammar schools; for the period of study in American schools is already shorter than that in the schools of other highly civilized nations, and the progress of the children in education is less rapid. There seems to be no reason, however, why in schools that have two sessions a part or the whole of the twenty-minute recess may not be profitably used for a system of games or light gymnastic exercises conducted under the direction of the teacher. The mental relaxation and the active movement, which constitute the real value of the recess, would be quite as great as they are at present.

Among the pupils in the high schools the need of physical culture is even greater. This is already supplied to some extent in the case of the girls by gymnastic exercises, which ought to be extended until in every high school there is a properly equipped gymnasium, and its use is a regular part of the curriculum. In the case of the boys the only physical exercise provided is that of military drill. Now it is the universal opinion of experts that the drill alone does not furnish the best kind of physical training; that it ought at least to be supplemented by regular compulsory work in a gymnasium. Such work might well be made preparatory to a somewhat abridged period of drill. A year, for example, might be devoted to it with great advantage, and every boy might be required to attain a certain standard of development before he is placed in the school regiment.

With a view to carrying out the suggestions embodied in this report the following order was adopted:

Ordered, That the Board of Supervisors, together with the Director of Physical Training, be requested to prepare and put into operation a plan for giving effect to the recommendation of the foregoing report.

Your committee understand that this order has been interpreted in a scientific and progressive spirit, and improvements and changes have been made in the system of physical training in the Boston public schools which will tend to markedly develop it in the right direction. If the gain that has been gradually made can be firmly held, and progress slowly continued along the same lines, there is no question that in the end, the public-school children of Boston will have physical training of a kind which will make them stronger and healthier citizens.

USE OF ANTITOXIN IN TWO CASES OF PUERPERAL SEPSIS.

BY LEONARD E. CLARK, M.D., WAVERLEY, MASS.

FOR the notes of these cases I am indebted to my friend, Dr. Allen Greenwood, of Waltham, who had them under his care during my illness.

CASE 1. Multipara. Former confinements normal except the one preceding, which was followed by some pelvic trouble that kept her in bed for a long period.

On the morning of February 11, 1897, she was delivered of a child weighing eight and one-half pounds, position O. L. A., no perineal laceration and but little flow.

She was seen on the mornings of the 12th and 13th, and found in a normal condition. Was not seen again until the evening of February 14th, when she was found to be in a high fever, but with a good pulse, and feeling well and strong. The nurse reported that the fever had developed the afternoon before, accompanied by a severe headache. The lochia were not offensive and there was no tenderness about the pelvic region. The uterus, however, was soft and poorly contracted. An intrauterine douche of corrosive, one to five thousand, was given, and the uterine cavity packed with iodoform gauze. Quinine was ordered in moderate doses.

February 15th. This morning the temperature had dropped to 101°, with a corresponding diminution of the pulse-rate.

February 16th. There still being considerable fever, the douche and packing was repeated.

February 17th. Temperature down in A.M.; but in the P.M. it went up with a slight chill, and the patient began to show the effects of septic absorption in her facial appearance. The abdomen was much distended, and the bowels loose.

An intrauterine douche of peroxide of hydrogen and creolin was given, and an iodoform suppository and gauze packing inserted. Curetting the uterine cavity did not seem advisable on account of the extreme softening of the walls; then, too, several cases came to mind, where under similar conditions, the curette had been pushed through the uterine wall, causing severe peritonitis.

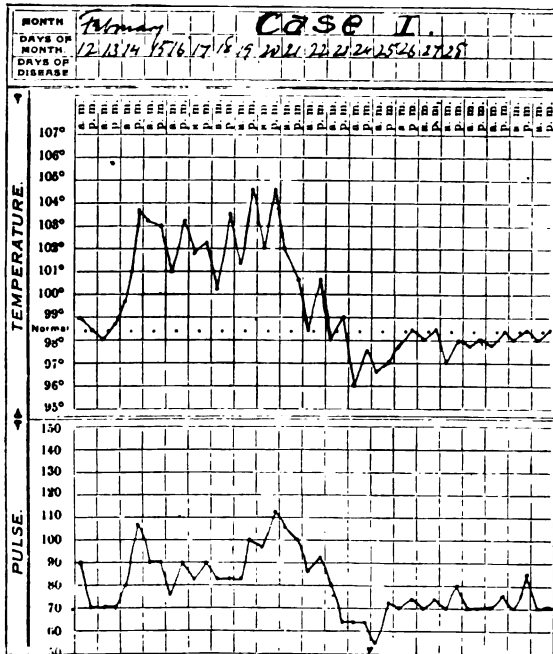
The treatment by intrauterine douches and application of iodoform suppositories and gauze was continued twice daily, with the free administration of quinine and brandy. In spite of this treatment the patient steadily grew worse until the evening of the 19th. She was then in a deplorable condition—delirious, with sighing respiration, cold hands and feet, pulse weak and compressible, and temperature

104.6°. An unfavorable prognosis was given to the family. Two bottles of antistreptococcus serum (Marmorek's, Pasteur Institute) were obtained from Boston, and the contents of both (20 c. c.) were immediately injected into the gluteal region.

February 20th. This morning, fourteen hours after the use of the serum, although the temperature had only fallen to the point of the morning before, the change in the patient's condition was very striking. From a state of delirium and partial collapse, she had become rational, asked to see her baby, wished to nurse it, and said that she felt very much better. The dose of serum was repeated, and the next morning it was very gratifying to find a normal temperature, which, except for a slight rise that afternoon, re-

acting as her nurse, and four-year-old child were also affected with sore throats. Cultures taken from the throats were found the next morning to be positive. A culture taken several days later from the patient's vagina was also found to contain the Klebs-Löffler bacillus and staphylococci. In the meantime the patient's two children were quarantined in the house, her sister and child were sent to the Waltham Hospital, and a trained nurse was placed in charge.

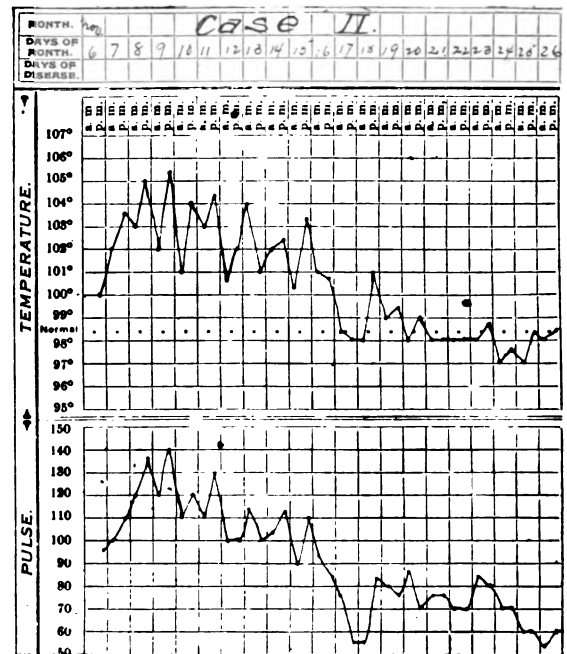
On the afternoon of the 8th, when it was apparent that the patient had been infected with diphtheritic bacilli, she was given an injection of 40 c. c. of the double antidiphtheritic and antistreptococcic serum of Gibier. At this time the temperature was 105°, and the pulse 136. The foul discharge was more abun-



maintained at or below normal. The accompanying chart shows very well the fall in temperature from 104.6° to 98.8°, thirty-six hours after the first dose of serum was given. The change in the quality of the pulse was equally striking. A speedy convalescence followed, and it would seem that the saving of this patient's life was undoubtedly due to the timely use of the antistreptococcus serum.

CASE II. Multipara. Previous confinements all normal. Easy labor, and child born at 2.30 A.M. of November 6, 1897. Very slight tear of perineum.

November 7th. This morning the patient was found with a temperature of 102°, but had had no chill, or other symptom of constitutional disturbance. In the afternoon the temperature was 103.6°. A vaginal examination showed the cervix to be covered with a thin, dirty yellowish membrane which extended up into the cervical canal. There was a profuse and foul discharge. The uterine cavity and vagina were douched with corrosive (1 to 3,000), and the uterus was carefully packed with iodoform gauze. It was then learned that two of the mother's children had been suffering with sore throats for about ten days, without being sick enough for the mother to feel it necessary to call the doctor. The patient's sister,



dant and contained shreds of membrane. The entire cervix, and also abraded perineum were found to be covered with membrane. The corrosive douche and packing of iodoform gauze were repeated.

November 9th. Morning temperature 102°. Patient seemed much better, discharge greatly diminished. In the afternoon, however, the temperature rose to 105.4°, and the pulse to 140. The local treatment was repeated, and 40 c. c. of the serum again injected.

November 10th. Morning temperature 101°. The patient felt and looked much better. In the afternoon the temperature did not rise quite as high as on the previous day. The local treatment was repeated. Quinine and whiskey were given in liberal doses, and the bowels were freely moved with salts.

November 11th. Morning temperature 103°. Local treatment repeated, much less membrane on the cervix, but sanguino-purulent discharge from the uterus very profuse. In the afternoon, the temperature was 104.4° and the pulse 130. The patient was in a very weak, nervous condition, declared that she was going to die, and said "good-by" to her husband. It did not seem best to repeat the antitoxin, as the septic condition was apparently produced by the presence in the uterus of pathogenic organisms for

which we had no antitoxin. In order to cleanse the uterine cavity as thoroughly as possible, it was washed out with peroxide of hydrogen, one to three of water, and over a quart was used. This was followed by corrosive (1 to 5,000), and then with sterilized water. Iodoform was freely sprinkled over the cervix and into the vagina.

November 12th. Much better in every way to-day.

November 13th. Temperature up again, but pulse remained good, and the patient seemed quite well. The peroxide and corrosive douche were repeated, and the membrane was found to have entirely disappeared.

November 14th. Very well.

November 15th. Slight exacerbation of temperature, but without depression.

November 17th. Temperature normal this morning.

November 18th. Temperature rose this afternoon, accompanied with pain in the shoulder and arms and a severe headache, with nausea and vomiting. This passed away during the next day; but the headache and pain continued with more or less severity for several days. With this exception the convalescence was uneventful, with a normal temperature.

How much the antitoxin had to do with the recovery of this case it is impossible to say, but these two cases are reported to add to the rapidly accumulating facts in regard to the use of the antitoxin serums, which seem destined to revolutionize the treatment of germ diseases by placing it upon a scientific basis.

THE CLINICAL AND PATHOLOGICAL REPORT OF A CASE OF FRACTURE OF THE SPINE IN THE CERVICAL REGION, WITH SOME STATISTICS ON FRACTURES IN THIS REGION.¹

BY J. W. COURTNEY, M.D.,

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My reasons for bringing the case I am about to report to your attention are twofold: first, because of the interesting pathological findings which were brought to light by the careful and exhaustive microscopic examination of Dr. J. J. Thomas, and, second, in order to bring about a discussion as to the general applicability of one of the diagnostic criteria which guided me in my attitude toward the case in point.

The patient was first seen by me, in consultation with Dr. R. W. Lovett, on October 2d of this year, at the Boston City Hospital, where he had been admitted with the diagnosis of fracture of the spine. The question was as to the justifiability of operative interference.

The complete history was as follows: The patient was forty-three years of age, single, and a sailor by occupation. His family history was unimportant. Previous history: Periodic excessive indulgence in alcohol; gonorrhea six or seven times; chancre two years previously, without secondaries.

Present illness. On the day before admission, at about five o'clock in the afternoon and seventeen hours before I saw him, he had, while drunk, fallen down a flight of twelve steps, striking on his back and shoulders. He was rendered unconscious by the fall and remained so for about half an hour. When

he came to he could not move his lower extremities at all and his upper only partially. He had not passed his water up to the time of admission and the bladder was found much distended, requiring catheterization.

Examination showed a man muscular and well nourished. He was lying on his back with face flushed and somewhat cyanotic. Psyche clear. The pupils were small, regular and equal, and did not react to light or accommodation. The cranial nerves were not involved. The movements of the head were limited in all directions, owing in part to pain in neck and shoulders. There was no marked deformity in the spine, but I thought I detected an abnormal lateral mobility of a spinous process in the lower cervical region. To this, however, Dr. Lovett could not agree. In the upper extremities the only movements possible were elevation, depression and adduction of arms and flexion of forearms. The patient could not pronate or supinate forearm, move the wrist, adduct or abduct the fingers, and the grasp was *nil*. Fibrillary tremor was marked in the biceps on both sides. Breathing was almost wholly diaphragmatic. Heart sounds and area were apparently normal and the lungs thus far free. Pulse 60, respiration 25, temperature 97°. The lower extremities were completely paralyzed, the patellar reflexes entirely abolished, as likewise the superficial, except a slight plantar reaction on the right. Sensation was absent over the entire lower extremities and trunk up to a point corresponding to the upper border of the second rib in front. In the arms the anesthesia corresponded (as was shown by diagram) to the region supplied by the internal cutaneous and ulnar nerves.

As to the location of the greatest height of the cord lesion, the distribution of the paralysis and anesthesia in the arms was, of course, the index. It will be remembered that the patient's paralysis corresponded here to the lower arm type and hence involved no nerve which arises higher than the seventh cervical segment. The cutaneous disturbance corresponded to the area supplied by the ulnar and internal cutaneous, which take their origin from the seventh and eighth cervical and first dorsal nerves.

The contracted and fixed pupil also pointed to a disturbance at the level of the first dorsal nerve.

From the topographical relation of these nerves to the vertebrae I concluded that the mischief to the spine was, in its highest point, at the level of the spinous process of the sixth cervical vertebra, and from the condition of the spine — absence of marked deformity — that the lesion was more probably fracture than dislocation. Furthermore, from the absence of the knee-jerks I ventured the conclusion that the cord lesion was absolutely transverse, a deduction which put operative interference totally out of the question.

The next day (October 3d) the patient's condition was nearly the same except that temperature, pulse and respirations had risen. He required constant catheterization, and priapism was always noted at such times. He felt fairly comfortable and took some liquid nourishment.

October 4th. Pulse and temperature still going up. Patient soporous.

October 5th. Cyanosis of face deeper. General condition about the same. Pupils still small, equal and fixed. Paralysis, reflexes and anesthesia the same as before.

October 6th. Patient very soporous. Face per-

¹ Read before the Boston Medico-Psychological Society, November 18, 1897. To appear later in *City Hospital Reports*.

spiring. Coarse bubbling râles at both bases, especially at right. Breathing more and more difficult and entirely diaphragmatic. Slightly delirious in afternoon. Kept elevating and depressing arms as if to aid breathing.

October 7th. Died, 12.10 A. M., about six days after onset.

The report of the autopsy, which was performed four days later by Dr. Mallory, enabled me to explain the mechanism of the damage to the cord. It read as follows:

Body that of a man fifty years old, 180 cm. long. Abdominal, pleural and pericardial cavities normal.

Heart. Weight 365 gm. Right side normal. Left side, wall somewhat thickened and left ventricle slightly dilated. Valves and cavities normal. Teased preparations show slight fatty changes.

Lungs. Both lungs very dark in color and very dense to touch. Bloody fluid could be squeezed from cut surface. There were also irregular, darkly mottled portions with hemorrhagic appearances.

Liver. Weight 480 gm. Pale in color and firm to touch. Lobulations not distinct.

Spleen. Weight 165 gm. Of ordinary size, dark-red in color. Malpighian bodies not distinct. Pulp not increased.

Kidneys. Weight 360 gm. Both were large and dark-red in color. Cortex not increased. On teasing, no fatty change.

Stomach and intestines normal.

Larynx, trachea and testicles normal.

Pancreas, adrenal glands, bladder and prostate normal.

Aorta showed slight yellowish areas.

Brain. Weight 1,190 gm. Normal.

Cord. Examination of spinal column from the anterior surface showed a transverse fracture of the body of the seventh cervical vertebra. On the left side there was slight hemorrhage in the tissues adjoining the body of the vertebra; only small fragments projected into the tissue. A small hole on the left side led down towards the spinal canal. On examination of the vertebral column from the back, quite a little hemorrhage was found in the muscles surrounding the lower cervical vertebrae. The posterior portion of the arches of the sixth and seventh were broken into several pieces, and projecting into the adjoining muscles, which had been lacerated by them. On the posterior surface of the dura, beneath the posterior arch of the seventh cervical vertebra, and, to a less extent, beneath that of the sixth, was a small amount of dark reddish coagulated blood. On opening into the cord no sign of hemorrhage was found within the dura. The blood-vessels on the surface of the cord were injected. Although the cord was partially frozen, and small spicules of ice lay within the spinal canal, very distinct softening of the cord opposite the point where the sixth cervical nerve was given off could be felt.

Anatomical Diagnosis: Hypertrophy of left ventricle, hemorrhage in lungs, slight arterio-sclerosis, fracture of the sixth and seventh cervical vertebrae, softening of cervical cord opposite the sixth nerve.

Cultures: Heart, kidney, liver and spleen sterile.

The sixth segment of the cord, it will appear from these findings, owed its softening in all probability to the jamming upwards and forwards of the fragments of the broken arch of the sixth vertebra, which were immediately retracted by their ligamentous and muscular attachments. In this connection the absence of pressure from bony fragments, and of dislocation or any great amount of intra- or extra-dural hemorrhage is significant when viewed from an operative standpoint.

What remained to be cleared up was the absence of any symptoms, clinically, referable to the sixth nerve, which ought from the seat of this intense

softening in the sixth segment to have been involved. On this point Dr. Thomas's findings were important.

The cord was removed and hardened by him in a ten-per-cent solution of formalin. Sections were made, first, at the point of greatest softening, that is, at the sixth cervical segment; again at the level of the second cervical segment, at the sixth dorsal segment, and at the second lumbar segment. The stains used were hematoxylin and eosin; Van Gieson's picric acid and acid fuchsin stain for the central nervous system; eosin and Unna's alkaline methylene-blue stain; and Marchi's method.

The section at the level of the sixth cervical segment showed no changes in the nerve roots, either anterior or posterior. The pia was slightly thickened; and in one point near the point of exit of an anterior nerve root there was an area infiltrated with small round lymphoid cells, with round deeply-stained nuclei, surrounded by a narrow zone of clear protoplasm. There were also occasional leucocytes, and larger cells with irregular nuclei not staining deeply, with more protoplasm surrounding the nuclei, the protoplasm having a faint bluish tinge in the section stained with alkaline methylene-blue. Occasional red blood globules were found in this region. In the white matter of the cord at this level the small blood-vessels were filled with red blood globules and some of them were widely dilated. About many of them there was a small infiltration of lymphoid cells and leucocytes. Throughout the white matter there were scattered red blood globules and in various places there were numerous larger and smaller hemorrhages, some near small blood-vessels and some at a distance from any blood-vessel. Scattered throughout the white substance also, but more numerous at the periphery of the cord, about the blood-vessels and in the neighborhood of the small hemorrhages, there were numbers of large cells from two to eight times the size of a leucocyte. These cells had moderately large, irregular, granular nuclei, not staining deeply. Some of the cells contained two nuclei and in others the nucleus was in two parts connected by a rather thin band. The protoplasm of these cells was finely or coarsely granular.

In the sections stained according to Marchi's method it was seen that many of these cells contained fat globules of various sizes. Other cells showed the granular appearance, but the granules were not stained by the osmic acid. Occasionally a red blood-corpuscle was seen enclosed in one of these large leucocytes. The nerve structure of the white substance of the cord were separated by the hemorrhage and the exudation into it, but looked fairly normal. In the sections stained by Marchi's method, however, it was seen that in many cases the axis cylinder was replaced by a round globule of fat and often the myelin sheath had also undergone fatty degeneration and only a large black mass could be seen. In others the axis cylinder has disappeared and the myelin sheath was represented by a complete, or broken ring of fat. These changes were about equally well marked in all parts of the white substance. Throughout this part of the cord were rounded, irregular, sometimes elongated masses, staining homogeneously with the hematoxylin and eosin stain, which were apparently masses of myelin, and some of the large leucocytes contained these same homogeneously stained masses.

In the gray matter of the cord much the same condition was found, except that here the hemorrhages

were more numerous and larger and the amount of exudation greater. The large phagocytic leucocytes were also quite numerous throughout this area, more especially in the anterior horns, and rather less in the posterior horns. The irregular masses and the bands of myelin were present also, chiefly in the anterior horns.

The large ganglion cells of the anterior horns had retained their shape fairly well, in some instances remarkably so. The nucleolus, however, showed only as a slightly more darkly staining body within the cell, and almost without exception the cells showed more or less fatty degeneration. In some cells there were a few scattered fat globules, in others the whole cell body appeared filled with the small black granules. In other cells where black granules were massed in only one part of the cell they were probably in part, or mostly, the pigment granules of the cell. The fat globules in the large leucocytes in the gray matter of the cord seemed rather greater in number than in those in the white substance. The bands and irregular masses of protoplasm also showed in places the presence of fatty degeneration.

The sections at the level of the second cervical segment showed very slight changes. In one, in the white substance, just at the border of the lateral horn of gray matter, there was a small hemorrhage. There was, also, all through the white substance of the cord a slight degeneration of the nerve fibres shown by the replacing of the axis cylinder or of the myelin sheath by fat, while many of the nerve fibres were much swollen. This was seen in all parts of the white matter, but was greatest in the crossed pyramidal tracts and the posterior tracts. The large nerve cells of the anterior horns contained rather an unusually large amount of pigment and occasionally the nucleolus and protoplasmic granules stained fairly, but in most of the cells these substances appeared normal. The membranes and nerve roots showed no changes.

The sections from the dorsal region of the cord showed much the same condition as that found in the upper cervical region. Considerable numbers of nerve fibres in the white substance were degenerated, the axis cylinder or myelin sheath being replaced by fat. Swollen fibres were also present in moderate numbers. Here, again, the changes were most marked in the crossed pyramidal tract and the posterior columns. The nerve cells of the anterior horn in sections stained by Marchi's method showed numerous black granules, some of the cells being completely filled with them. In other cells they were massed together in one part of the cell only. These granules were probably in part the pigment granules of the cell and in part globules of fat. In these cells, also, as in those of the upper cervical cord, the nucleolus and protoplasmic granules were usually distinct, but in some they stained very faintly with the alkaline methylene-blue stain. In the anterior nerve roots there were a few fatty degenerated nerve fibres.

In the lumbar region of the cord there was the same diffuse degeneration of nerve fibres in the white substance, and quite numerous large, swollen nerve fibres. The changes again were most marked in the lateral pyramidal and posterior tracts of the cord. The changes here were, if any thing, more marked than in the dorsal cord. The anterior nerve roots showed a few degenerated nerve fibres, and the nerve cells of the anterior horn showed changes similar to those

found in the dorsal cord. Many of the cells were completely filled with small black granules.

Diagnosis: Hemorrhage and acute degeneration at the level of the sixth cervical segment of spinal cord. Acute diffuse degeneration of nerve fibres of lateral pyramidal tract and of posterior columns. Slight acute degeneration of ganglion cells of anterior horns of dorsal and lumbar regions of cord and of anterior nerve roots of these regions.

There are many interesting features in connection with these findings, notably the complete transverse character of the lesion in the sixth cervical segment, with escape of the sixth nerves. Of great practical significance in connection with operation are the intense secondary degenerative changes which had taken place throughout the cord in less than six days, and, finally, of physiological interest is the descending degeneration which was noted in the posterior columns.

This latter condition is now a matter of fairly common observation and various hypotheses have been put forward to account for its existence, but none of them is satisfactory.

Bruns² considers it to be a degeneration of the so-called descending fibres of the posterior roots, and quotes Marie as his authority.

Tooth³ has shown that cutting of the posterior nerve roots alone does not produce this descending degeneration and that the latter extends lower than the descending collaterals of the posterior roots.

In support of Tooth's views stand those of Gombault⁴ and Philippe, who in one case by destruction of the posterior roots alone got no descending degeneration, and in another by total cross-section of the cord succeeded in getting it. They concluded, however, that they were dealing with commissural fibres of no great length.

From this last conclusion Egger⁵ dissents, because in a case of complete transverse destruction of the cord from fracture in the upper dorsal region he found extensive secondary degeneration in the posterior columns both horizontally and *vertically*.

As a possible explanation of the phenomenon I offer the following: Bruns⁶ noted in his case that the lateral pyramidal tracts directly under the lesion were strikingly normal, whereas, low down in the cord they were much degenerated, and in explanation of this he says that degeneration begins first in the most distal portion of a cut nerve and reaches the end nearest the lesion last of all. In our case Dr. Thomas noted that the changes in both the pyramidal tracts and posterior columns were, if anything, more marked in the lumbar region than in the dorsal, a circumstance which not only supports Bruns's theory as regards the *modus operandi* of pyramidal degeneration, but allows the inference that the same theory may hold good for the posterior column and that the paradox of *descending* degeneration of this column is merely apparent and not real. I do not, however, insist on this point.

To return once more to the clinical side of the case. Does the absence of the knee-jerk in fractures

² L. Bruns: Ueber einen Fall totaler traumatischer Zerstörung des Rückenmarkes an der Grenze zwischen - Hals und Dorsalmark. Archiv. für Psychiatrie und Nervenkrankheiten, Band xiv, s. 308.

³ Tooth: Secondary Degeneration of the Spinal Cord, London, 1879.

⁴ Gombault and Philippe: Contribution à l'étude des lésions systématiques dans les cordons blancs de la moelle épinière. Archives de médecine expérimentale, No. 3, 1894.

⁵ F. Egger: Ueber totale Compression des oberen Dorsalmarkes. Archiv. für Psychiatrie und Nervenkrankheiten, Band xxvii, s. 129.

⁶ L. Bruns: same reference as Note 2.

of the cervical and — for that matter — of the upper dorsal spine signify a total transverse lesion of the cord?

This is a question which has engaged the attention of all observers since Bastian⁷ made special mention of the subject in 1882. Bastian was not, however, according to Egger,⁸ the first to call attention to the phenomenon, although he was probably the first to attempt an explanation of it. Kadner,⁹ in 1876, published a case of carcinoma of the first four dorsal vertebræ in which the patellar reflexes were lost and remained so until death occurred, nineteen days after the complete establishment of paraplegia. The pathological examination showed complete atrophy of the cord at the height of the second dorsal vertebra. The same author observed the absence of the knee-jerk in a second case also, which was one of fracture, but referred to it only briefly, stating that it was opposed to the results obtained experimentally on animals.

Bastian's explanation that it is due to the cutting off of the paths from the cerebellum, namely, the direct cerebellar tracts, which have to do with the maintenance of muscle tonus, has received support from such observers as have noted the absence of the knee-jerks in cerebellar tumors. The opponents of this theory point out its untenability on the ground that there are no descending fibres from the cerebellum to the cord. Oppenheim¹⁰ came out very strongly in 1894 with the statement that the absence of the knee-jerk had never been observed by him in uncomplicated cerebellar tumor and that it meant a coexisting disease of the posterior columns of the cord. He further¹¹ very pointedly recommends future investigators to examine the cord as well as the brain in those cases of cerebellar tumor where the phenomenon of absent knee-jerk is observed clinically.

Sternberg¹² offers the hypothesis of an inhibitory influence which starts from the point of lesion and acts upon the centres below. It requires, however, as Egger¹³ justly says, a considerable effort of the imagination to understand how this vague inhibiting power can be active for any great length of time.

Shock has also been offered as an explanation. To this Egger again objects, on the ground that the clinical picture of shock is too characteristic and its duration too definite to attempt to make the phenomenon in question a part. In connection with this I might add that in one case of fracture which I obtained from the hospital records in which a severe lesion to the cord was undoubtedly present, the knee-jerks were noted as present during the first twenty-four hours (period of greatest shock) after the injury and later as absent.

Whatever the explanation of the matter may be, it suffices to say that there are now on record a fairly large number of carefully observed cases in which the absence of the knee-jerk has been noted in total

transverse lesions of the cervical and upper dorsal cord. In only 13 out of 50 cases of fracture in the cervical region of the spine whose reports I examined in the City Hospital Records was the condition of the reflexes noted, but in all thirteen there was complete absence of the knee-jerk — once with preservation of slight cremasteric reflex and once with slight plantar. In my own case the plantar reflex was present slightly on the right.

In concluding this portion of the paper, I will simply say that I draw no sharp general conclusions from the behavior of the knee-jerks in my case, but simply adduce the observation as so much positive evidence and leave the matter open for discussion.

As to the general subject of fractures in the cervical region of the spine, the following facts elicited by an examination of the records of the City Hospital need no comment.

Of the 158 cases of fracture of the spine admitted to the hospital from January, 1881, to May, 1897, 50 were in the cervical region, and of these fifty all died. I have classified them as to topographical distribution and to duration of life after accident as follows:

Upper cervical region, 1 case. Duration, 24 hours.
Mid-cervical region, 9 cases. Duration from few hours to one day.
Average duration, 18 hours.
Lower cervical region 40 cases. Duration from few hours to one month. Average duration, 5 days.

In 23 cases there was no deformity or crepitus. In 15 these were not mentioned. Deformity when present was usually in the nature of slight depression and abnormal mobility. Crepitus was noted only three or four times. Tenderness over the injured area of the spine was, on the contrary, a common observation.

Five cases were operated. In none were the fragments found to be pressing on the cord. In two there was special mention made of the fact that no extra- or intra-dural hemorrhage was manifest. One case died on the table, and one in forty-eight hours.

Only three autopsies appear in the records. The first stated that the cord was softened and red, and that the fractured vertebra was not pressing upon it. No extra- or intra-dural hemorrhage was found. The second autopsy showed slight anterior displacement of fractured vertebra and only a moderate amount of blood outside and within dura. Complete disintegration of cord at point opposite fracture. Fragments not pressing on cord. The third autopsy showed fracture of the spinous process of the sixth cervical vertebra, with separation between this process and that of the fifth admitting tip of little finger. There was also a displacement of the fifth cervical vertebra forward to the extent of nearly one-quarter of an inch. In the spinal canal within this lesion the dura was reddened, but there was no free blood either outside or inside the meninges. In immediate relation with the vertebral injury the cord showed an area of softening through one-half an inch of its length and involving its entire thickness. The cord was at this point of the consistency and color of thick cream. There was no hemorrhagic appearance.

A HEALTHY LOCALITY.—Friendsville, a little village in the Pennsylvania mountains, is remarkable for the longevity of its inhabitants. The town contains 135 inhabitants, of whom 27 have passed the age of ninety.

⁷ H. C. Bastian, in Quain's Dictionary of Medicine, 1882, p. 1480. Also later article, On the Symptomatology of Total Transverse Lesions of the Spinal Cord, with Special Reference to the Condition of the Various Reflexes. Medico-Chirurgical Transactions, London, 1890, p. 150, et seq.

⁸ F. Egger: Ueber totale Compression des oberen Dorsalmarkes. Archiv. für Psychiatrie und Nervenkrankheiten, Band xxvii, s. 129.

⁹ Kadner: Zur Causalistik der Rückenmarkskompression. Wagner's Archiv der Heilkunde, 1876.

¹⁰ H. Oppenheim: Sitzungsbericht der Berliner Gesellschaft für Psychiatrie und Nervenkrankheiten. Neurol. Centralbl., 1894, No. 1.

¹¹ Same author, Die Geschwülste des Gehirns. Wien, 1896.

¹² M. Sternberg: Die Reflexe und ihre Bedeutung für die Pathologie des Nervensystems. 1893.

¹³ F. Egger: Ueber totale Compression des oberen Dorsalmarkes. Archiv. für Psychiatrie und Nervenkrankheiten, Band xxvii, s. 129.

Clinical Department.

THREE CASES OF TRANSVERSE FRACTURE OF THE PATELLA TREATED BY WIRING: RECOVERY, WITH EXCELLENT RESULT IN EACH CASE.

BY J. V. MEIGS, M.D., LOWELL, MASS.,
Surgeon to St. John's Hospital.

In the *Boston Medical and Surgical Journal* of the issue of December 16, 1897, there appeared an interesting editorial on the "Treatment of Fracture of the Patella." Strange to say, the notes of three cases have been lying upon my desk, cases occurring during my service at St. John's Hospital in the year 1896, which I was intending to report at some future day. These cases have been to me interesting. I was first led to treat these fractures by wiring from observation of a case seen in consultation.

A man, although strongly advised by his attending surgeon and myself to submit to operation, refused, necessitating its dressing in the old way — elevation, straps and figure-of-eight bandage. This case was a very difficult one to hold; in fact, it was out of the question, on account of swelling and pain, to even approximate coaptation of the fragments. The dressings had to be changed, frequently tightened, then loosened, and then tightened again. The result in this case (and I very carefully watched it) was not good, yet it was as good, if not better, than many others which I have seen treated in the same manner. In this case the union, fibrous or otherwise, which he got was slow, the patient being confined to his bed for six or seven weeks. His position in bed uncomfortable, sufferings excruciating, both from his position and the form of dressing used. After getting up from his bed it was five and one-half months before he was able to attend to his work. Then there is a separation of nearly one inch between the fragments, and while not lame, yet he has a limb that he cannot use as he did before. This case I watched carefully, and made up my mind, from its progress and from its result, that the next case I had with this fracture I would strongly advise wiring. I have wired three, as will be seen below, with excellent results. All three of my cases were young adults in good health and of good habits.

CASE I. J. M., aged twenty-three years, and a laborer by occupation, fell some little distance April 10, 1896, striking upon the right knee. He was carried to St. John's Hospital, carefully examined, and found to be suffering from a transverse fracture of the right patella. The knee was enormously swollen and exquisitely sensitive. His leg was elevated and ice-bags placed upon the knee as preliminary treatment until April 17, 1896. On this day, the swelling having considerably abated, he was placed upon the operating-table, ether administered, and under the most strict asepsis a transverse incision was made over the patella, which was found to be fractured transversely into two fragments, the upper being quite a great deal the larger of the two. The joint was full of clotted blood, which was removed, the joint carefully washed out with sterile water and the edges of the fragments freshened by the use of a chisel; two holes were then drilled obliquely in each fragment,¹ care being taken

not to go through the cartilage; silver wire, one-sixteenth of an inch in thickness, was then introduced, joint again carefully flushed, fragments brought together and wire twisted with several twists and hammered flat. Capsular ligament of the knee was then carefully united over the patella by a continuous suture (Leaven's No. 1 chromicized catgut being used). Skin then united by a running silk suture, sterile dressing applied, and leg placed upon a long posterior splint and elevated a little. This patient made an uneventful recovery. At the end of two weeks the stitches were removed, the wound having healed by first intention, and the leg again dressed as before. At the end of the next two weeks, or four weeks after the operation, the splint was removed and the result found to be perfect. A plaster-of-Paris bandage was now placed about the knee, and patient given crutches. After two more weeks, or six weeks after operation, patient was discharged well. He could bend the knee with ease and perfectly, could kneel without much pain and with little inconvenience, and could walk without a limp.

CASE II. C. G., age nineteen, health and habits good, and a farmer by occupation, was admitted to St. John's Hospital May 12, 1896, suffering from a fractured patella. Upon inquiry the following history was elicited: March 14, 1896, while engaged in his work, he fell, striking on his right knee-cap. He was unable to get up, and was carried by the ambulance to St. John's Hospital. He came under the care of Dr. J. Arthur Gage, who made a diagnosis of transverse fracture of the patella, and advised wiring. This was done on March 15, 1896, by Dr. Gage, with a happy and perfect result. He was discharged April 27, 1896. After his discharge he immediately went to his work, and all went on well until May 12, 1896, when in jumping from a wagon to the ground he again fractured the same patella. He immediately returned to the hospital, where on May 13, 1896, I opened up his knee-joint by a vertical incision on the line of the scar of the previous operation. On getting down to the patella I found the bone broken transversely into two fragments, the wires broken next to the knots, the fragments wide apart, and the space between them and the whole knee-joint filled with blood-clot. I removed the broken wire, cleaned out the joint and examined the fragments carefully.

There is no doubt whatever but that bony union, although somewhat feeble, had taken place, and that his fall had torn the fragments rudely apart. I freshened the edges of the fragments, made new drill holes, re-wired and closed as in the above case. The dressing applied was the same as in Case I. This patient made an uninterrupted recovery, and was discharged July 3, 1896, with a perfect union and with a limb almost as useful as it was before his first fracture.

CASE III. J. S., a laborer, aged thirty-one, admitted to St. John's Hospital August 17, 1896. On admission we got the following history: He had suffered a fall, striking his right knee against a curbing. His knee was greatly swollen, discolored and exceedingly painful. At the time of his admission I did not think it wise to operate at once; so he was put to bed, leg elevated and ice-bags applied to the knee. September 1, 1896, I operated, making a transverse incision, and carrying out the details as in the two previous cases. Patient made a perfect recovery, and was discharged

¹ In drilling the holes I have made use of an ordinary metal-handled awl, such as can be purchased of any hardware dealer at a cost of twenty-five cents. The drills made for surgical use are extremely difficult of management, unwieldy, liable to break and cause annoyance.

from the hospital, October 17, 1896, without deformity, without lameness and in excellent condition.

Under strict aseptic precautions, given a young, healthy patient of good habits, I do not think I should hesitate a moment in deciding to operate. With operation the results are better, convalescence speedier, patient more comfortable; and the surgeon is saved from much condemnation.

A CASE OF TRANSPOSITION OF THE VISCERA.

BY H. F. VICKERY, M.D., BOSTON.

MARCH 25, 1896, Mr. W. C. T., twenty-seven years old, a clerk in Boston, was sent to me by Dr. J. E. Clark, of Medford. The family history was excellent. With regard to the previous health, it was stated that he had pneumonia when one year old, and also certain children's diseases, but recovered well from all of these. Two years before he visited me, having a slight cold he presented himself to Dr. Clark, who found the condition about to be reported. With regard to his present health, Mr. T. said that it was excellent, and that he had very little, if any, dyspnea. For instance, he could climb two or three flights of stairs without discomfort. He did say, however, that he found running to "hare and hounds" trying, which would hardly be regarded as proof of unusual shortness of breath. Otherwise there were no symptoms of disease. The reason of his coming was that he desired to have more than one doctor to support him in an application for life insurance, fearing that otherwise he might be unjustly rejected.

The result of the physical examination was that the heart, liver and spleen were found to be transposed from their normal positions to the opposite side of the body respectively. On inflation, the stomach was also found lying toward the right side instead of the left side; and air injected per anum distended the colon on the right, as if the descending colon were upon that side.

A year later, the fluoscope having come into use, the patient was examined with the x-ray, through the courtesy of Mr. Dodd, at the Massachusetts General Hospital, and the heart was seen lying upon the right side, and the great shadow of the liver was seen upon the left side; otherwise the fluoscope showed nothing distinctly. The measurements of the limbs were as follows: right arm, at the belly of the biceps, 9½ inches; left arm, 9 inches; right leg, 17½ inches; left leg, 17 inches. The left testicle, as in other men, hung lower than the right, and the patient was right handed.

It may be said, in conclusion, that Mr. T. obtained life insurance without any difficulty. The only chance for doubt as to the correctness of the opinion that this is a case of transposition of the viscera might be raised by the statement that he had pneumonia when he was a year old. It might be objected that this was perhaps a pleurisy which on recovery had drawn the heart over to the right side; but the patient, as above stated, had very little, if any, dyspnea. The function of both lungs was found to be excellent upon examination; and furthermore such an hypothesis could not account at all for the position of the abdominal organs, which seemed to be very clearly transposed, as well as the thoracic.

Medical Progress.

RECENT PROGRESS IN OPHTHALMOLOGY.

BY MYLES STANDISH, M.D., AND WILLIAM D. HALL, M.D., BOSTON.

(Continued from No. 1, p. 14.)

CONJUNCTIVITIS BOTRYOMYCOSA.

FABER¹² noticed between the swollen papillæ of an intensely inflamed conjunctiva of a farm-hand some small grayish granules, which were found to contain small corpuscles arranged in longish clusters, which microscopically were proven to be botryomyces, a fungus resembling actinomyces and which up to this time has been found only in the horse.

CLASSIFICATION OF INFECTIOUS CONJUNCTIVAL DISEASES.

Coppez¹³ compares the ancient classification resting upon anatomy and symptomatology with the more modern, having for a basis etiological and bacteriological data. He mentions

- (1) Gonococcus as causing (a) classical purulent; (b) catarrhal; (c) granular; (d) pseudo membranous.
- (2) Bacillus of Weeks: (a) classical catarrhal; (b) pseudo-membranous.
- (3) Pneumococci: (a) catarrhal; (b) phlyctenular; (c) purulent; (d) granular; (e) pseudo membranous.
- (4) Staphylococci: (a) catarrhal; (b) purulent; (c) phlyctenular; (d) pseudo-membranous.
- (5) Streptococci: (a) catarrhal; (b) purulent; (c) with glands.
- (6) Klebs-Löffler: (a) classical catarrhal; (b) pseudo-membranous.

He advocates a purely etiological classification, as offering advantages of prophylaxis and the application of serum therapy, but recognizes the difficulties in application.

For a purely anatomical classification he offers

- (1) Catarrhal: gonococcus, diplo-bacillus, staphylococcus, streptococcus, pneumococcus, Klebs-Löffler.
- (2) Purulent: gono-staphylo-strepto-pneumococci.
- (3) Granular: gono-pneumococci.
- (4) Phlyctenular: pneumo-staphylococci.
- (5) Pseudo membranous: gono-staphylo-strepto-pneumococci, bacillus of Löffler and Weeks.

At present the older classification is rather better as the bacteriological data may be joined in each case.

THE PATHOGENY OF GLAUCOMA.

Sulzer¹⁴ interprets the appearances of the fundus in one case which he was able to examine eight days after the sudden onset of glaucoma fulminans, as denoting a complete arrest of the retinal circulation. Although he admits that a glaucomatous attack as a sequel to an embolus of the central artery or an attack of glaucoma occurring synchronous with an embolus would present a similar complex, still he considers, as increased intra-ocular tension always retards or stops the current of blood in the retina, that in this particular case there is to be admitted a relation between cause and effect. Insomuch as Ludwig has demonstrated that the pressure of the saliva in the excretory ducts can exceed the pressure of the artery

¹² Conjunctivitis botryomycosa, Rep. Soc. Néerlandaise d'Ophtal., December, 1896.

¹³ Essai de classification des conjunctivites infectieuses, Rep. Soc. Belg. d'Ophtal., December, 1896.

¹⁴ The Pathogeny of Glaucoma, Ann. d'Ocul., February, 1897.

which supplies the gland, it is possible to imagine the intra-ocular pressure exceeding the arterial pressure of the retinal vessels, on account of the influence exerted upon the vessels of the ciliary body by the secretory fibres of the first branch of the third.

He would classify glaucoma according to predisposing causes as circulatory, vascular and nervous, all being related by vascular degeneration, primitive in the second, and secondary in the other two, where it depends upon interference with the arterial circulation produced in the first class by interruption of the equilibrium between the intra-ocular tension and the arterial tension and in the third class by nervous influence. The disturbances circulatory, degenerative and nervous are interdependent both producing and reinforcing one another. The circulatory disturbance plays the most important part in all the varieties. The excavation he does not consider to be a mechanical result of the increased tension but is produced principally by a partial degeneration of the myeline fibres of the papilla, upon which degeneration depends the paralysis of the corresponding peripheral elements of the retina, produced in turn by the retardation of the circulation and secondarily by insufficient nutrition of the tissue of the papilla depending equally upon the insufficient arterial supply. Thus weakened the papilla can yield still more to the increased tension.

INFANTILE GLAUCOMA.

Gros¹⁵ finds the condition to be characterized by increased tension, distention of the globe and excavation of the papilla; sometimes also hypermetropia. The course may stop spontaneously with preservation of some vision. The cause is uncertain although heredity may play an important part. This symptom complex may be supposed to depend upon some obstruction of the canals of excretion or to an arrest in the development of these canals and this is why the obliteration of the angle is not constant. Excavation is very frequent but atrophy only appears at a late stage. The prognosis is grave and interference by operation should be early, which may be either an iridectomy or a sclerotomy. The larger the globe, the smaller the incision and, in case there is much distension, an iridectomy is contraindicated.

RESECTION OF THE CERVICAL SYMPATHETIC.

Jonnesco's paper¹⁶ is a description of five of the six cases in which he has practised a total and bilateral resection of the cervical sympathetic, twice being for exophthalmic goitre, twice for epilepsy and once for chorea with epilepsy. He was induced to attempt this intervention in the first place by the attempts of others in this direction. In 1889 Alexander did bilateral and complete resection of the superior cervical ganglion; Kummel has done unilateral resection of the same; Vacksh ligated *en masse* the vertebral artery and vein before their entry into the bony canal in order to tie the sympathetic vertebral plexus which accompanies them, and section of the trunk of the sympathetic beyond the superior ganglion. Bogdanik in 1893 resected the middle cervical ganglion, or if this failed the excision of that part of the trunk of the sympathetic found at the habitual seat of the ganglion. Jaboulay, in 1895, practised section of the cervical sympathetic in an epileptic to modify the cerebral circulation, and

in 1896 isolation of the middle cervical ganglion by cutting four or five efferent branches, then he cut the trunk of the sympathetic below the ganglion to the right and left. It was suggested in the second place by the lesions of the sympathetic found in epileptics (hyperemia), likewise found in Basedow's disease. As a cause of this latter disease autopsies have shown lesions affecting the nerve trunk and the ganglions, preferably the inferior and middle, consisting of atrophy of the nerve cells. The unsatisfactory results from these attempts and the sufficiently constant lesions have suggested to him the more radical operation. Then follows a very complete description of the various steps of the operation and a short *résumé* of the five cases. He summarizes as follows: total and bilateral resection of the cervical sympathetic can be undertaken without fear of ultimate disturbance; the operation is not difficult, and can be supplemented by ligature of the thyroids.

REMOVAL OF THE THYROID.

In the discussion which followed the report of a fatal case by Lejars, Tillaux¹⁷ advised operating only when the symptoms were due to a tumor included in the gland, and then to leave the gland as much as possible intact, thus avoiding myxedema, while Poncet, on account of the danger of the operation, is in favor of nerve and ganglion resection.

ACTION OF LIGHT UPON THE RETINA.

The experiments of Pergen¹⁸ were made upon fishes, a part of which were decapitated in darkness after having remained in this condition for forty-eight hours; the others were decapitated after exposure to daylight for some time. Immersion in five-per-cent. nitric acid then followed for twenty-four hours.

The results obtained may be summarized as follows: in the dark the retina is thicker than in the light as a result of the extension of the rods and cones, and on account of the migration of the pigment from the epithelium. Under the influence of light the distal part of the epithelium approaches the external limiting membrane, the rods and cones contracting. In the light the nuclein of the nuclei diminished in all the layers except the molecular. In darkness a portion of the protoplasm which surrounds the nuclei of the rods and cones passes across the external limiting membrane, which re-enters under the influence of light when the nuclein diminishes. The external granular layer may be considered as constituting a reserve of protoplasm and nuclein bearing direct relation to the functioning of the rods and cones. Their contraction is immediate, the migration of the pigment is slower.

In a second series, in which the fishes had remained in the dark and were then exposed to the spectrum, it was found that the migration is less in the red but more in the blue. The contraction is stronger in the green and feebler in the blue. The migration and the contraction is the same in both if only one is irritated, while, on the contrary, the diminution of nuclein seems to take place independently in each eye. No color affects the cones to the exclusion of the rods or *vice versa*, as regards the nuclein. The same elements perceive all colors, contrary to the classical theories demanding three sets of fibres. At the time of the diminution of

¹⁵ Etude sur l'hydrophtalmie ou glaucome infantile, Paris, 1897.

¹⁶ La Résection totale et bilatérale du sympathique cervical, Ann. d'Oc., March, 1897.

¹⁷ Removal of the Thyroid for Exophthalmic Goitre, Ann. d'Oc., March, 1897.

¹⁸ Action de la Lumière sur la Retine, Annales de la Soc. Royale de Sci. de Brux, 1896.

nuclein the protoplasm becomes less affected by basic colors. In the light of present knowledge the retinal sensation of color may be considered as a complex of phenomena, of which the migration of pigment, the alterations of erythropeine, the contraction of the rods and cones, the diminution of the nuclein and the modifications in the protoplasm are the more easily demonstrable. The diminution of the nuclein, being principally noticed in nuclei of the rods and cones, offers a new proof of the localization of perception of light and color in these elements. The appearances in a fish exposed to the Röntgen rays for a half-hour were negative; the same as in total darkness.

CORNEAL CHANGES IN DIPHTHERIA.

Coppez¹⁹ states that the loss of the cornea in conjunctivitis with membrane has long been considered to be due to necrosis. Sourdille has maintained that through a solution of continuity, as, for example, an ulcer, the microbes obtain an entrance, multiply and cause destruction of tissue. Lack of nutrition when the membrane has reached the limbus can also prove fatal. In slight and purely tarsal forms something else is necessary. The toxin can penetrate and alter the nutrition of the membrane. This can take place either by the lymphatic channels or through the eroded surface or by dialysis in the presence of a scar. Although it is not known whether the antitoxin acts chemically or through the agency of the cells, he suggests introduction of it beneath the conjunctiva of the bulb, and supports his claim by deductions from experiments upon animals.

MENINGITIS FOLLOWING ENUCLEATION.

Lapersonne²⁰ calls attention to the frequency with which the pneumococci are found about the eye when in a state of inflammation, and describes an acute basal meningitis following enucleation in which the infection was propagated along the lymph channels of the nerve sheath. Inasmuch as the antiseptic agents at hand do not attack the capsule, he advises a preliminary use of some alkaline substance which will dissolve this capsule, and considers a sterilized solution of purified hypochlorite of lime as being most suitable, as it is also well borne by the conjunctiva.

CILIARY BODY EXTRACT.

Dor²¹ describes a severe case of sympathetic ophthalmia, which, in spite of enucleation of the other eye and a prolonged and energetic treatment, went on to almost total blindness. The globe was highly injected and painful and notably diminished in volume. After a two months' course of injections and instillations of an extract prepared from the ciliary body of an ox, the tension became almost normal, and vision returned to a degree that the patient could go about alone. Dor offers the following in explanation. Since the aqueous humor in passing from the ciliary processes leaves behind the fibrinogen and nearly all the albumin contained in the serum whence it originates, and as in pathological conditions, on the contrary, the fibrinogen and albumin continues on into the general circulation of the eye, there ought to be in the cells covering the ciliary processes a chemical substance which would retain

the albumin. As this substance is wanting in diseased eyes, it should be sought for in the animal eye and introduced into the human eye. He recommends the maceration of 40 per cent. ciliary bodies in a 1-500 aqueous solution of resorcin for forty-eight hours.

(To be continued.)

Reports of Societies.

THE NEW YORK ACADEMY OF MEDICINE. SECTION IN ORTHOPEDIC SURGERY.

MEETING of November 19, 1897.

DISEASE AND DEFORMITY OF THE TIBIA.

DR. S. KETCH presented a patient with an unusual deformity of five years' duration. The patient was a girl twelve years old. He had seen her for the first time one week ago. There was anterior bowing of the right tibia and some eversion of the foot. The bone was three inches longer than that of the well leg and greatly thickened. The circumference of the leg was one and one-half inches larger than on the well side. The child's general condition was poor, the result probably of pain, which had been a feature of the history. The skiagraph showed a thickened tibia with some irregularities in the enlargement and an almost complete disappearance of the epiphyseal line due to pressure. He had traced cases resembling this in many features to syphilis, but here there were no signs of infection and history of transmission.

DR. W. R. TOWNSEND said that he had seen a somewhat similar case in which the extra heat of the limb had led to a diagnosis of osteitis. The diagnosis was wrong, however, as at the end of five years, the bone was found to be sarcomatous, and amputation was done. He thought that the question of sarcoma should not be overlooked in considering the treatment of the present case. The remarkable deformity of the bone had some resemblance to a bowing of a syphilitic tibia, but it was not the *lame de sabre* described by Fournier.

DR. H. L. TAYLOR said that the strong anterior curvature of the tibia, the enlargement throughout the shaft, the slight nodes on the surface and the elongation of the bone pointed to syphilitic osteitis.

DR. J. TESCHNER had noticed that the swelling and tenderness were more marked on the anterior aspect of the bone, where there was probably pus. These signs and the localized heat indicated an inflammatory action and led him to believe that there was necrosis and that a sequestrum had produced the thickening and enlargement.

DR. R. WHITMAN said that the skiagram showed that the entire bone was involved. He did not think it was sarcoma, but rather a case of diffuse osteitis which might have been of syphilitic origin. There might also have been a fragment of necrosed bone within the shaft which kept up the chronic inflammation with continuous enlargement of the bone.

DR. V. P. GIBNEY said that he would treat the case as one of abscess of the tibia. Opening the medullary canal would probably reveal several abscesses. In any case it would not do any harm to operate in this way, even if the case were one of sarcoma. He had operated for multiple abscess of the

¹⁹ Des altérations cornéennes dans la diphtérie conjonctivale et de l'injection locale de serum, Soc. Franc. d'Ophthal., Mai, 1897.

²⁰ Méningites à pneumocoques après l'enucléation, Soc. franc. d'Ophthal., Mai, 1897.

²¹ L'extract de corps ciliaire de bœuf, Soc. Franc. d'Ophthal., Mai, 1897.

tibia in a young woman, and had planted decalcified ox-bone in the trough-like cavity. Some of it remained and some did not, and other operations had to be done. Since the last she had been perfectly well, and was living out at service.

DR. KETCH said he was disinclined to think that his patient had sarcoma. This, as well as multiple abscess, would have caused more local and general disturbance. He believed that a sequestrum was present. Antisyphilitic medication would be thoroughly tried, and after that it was probable that the bone would be operated on.

A CASE OF GENU-VALGUM.

DR. R. H. SAYRE presented a patient, a boy sixteen years old, who, while carrying heavy loads in a bakery, six months ago began to have double genu-valgum, the result of adolescent rickets, and a failure of the bones of the leg to sustain the weight. Three months ago the limbs were put up in plaster-of-Paris, and the boy was kept in bed for two months. To correct the deformity a circular cut was made in the plaster-of-Paris around the knee and a wedge of wood was inserted on the outer side. In a week or so the knee was straightened still further and a larger wedge was inserted. At the end of two months when the splint was removed and the boy began to walk again, there was a slight transient synovitis. To improve his general condition strychnia had been given and the elixir phosphori of the national formulary. The result of treatment was that the limbs were very nearly straight. As there remains some relaxation of the joints, he should have braces to prevent lateral motion during convalescence.

AN OPERATION FOR SLIPPING PATELLA.

DR. WHITMAN presented a boy thirteen years old on whom he had operated sixteen months ago for slipping of the right patella. The capsule had been divided on the outer side and considerable difficulty had been found in reducing the dislocation on account of the contraction of the tissues. A tuck was taken in the capsule on the inner side. The patella was now over the external condyle. When he left the hospital it had been in the median line. For a time he had worn a knee-cap as directed, which he had long ago discarded. This case was not presented as a fair test of the operation, as the dislocation was but part of the disability and deformity attending hemiplegic contraction of the right side of the body. It had, however, relieved pain and discomfort.

DR. GIBNEY said that it was still a question what is the best treatment of slipping patella. He had transplanted a fragment of the tibia with the insertion of the ligamentum patellæ in a girl fourteen years old. Union in the new position was secured, and the limb was put up in plaster-of-Paris. In spite of a little suppuration, the recovery was good. The ultimate result, however, was in doubt, as the patient was lost sight of.

In another young woman the slipping had occurred repeatedly, followed sometimes by acute inflammation. A splint had been applied, and she was wearing it still to keep the patella in place. In a boy of four years the slipping patella had been easily reduced; and it is probable that massage and the growth and development of the muscular fibres will be sufficient to remove the trouble.

KYPHOSIS OF UNCERTAIN ORIGIN.

DR. TOWNSEND presented a patient with marked kyphosis in the dorsal region and slight lateral curvature. The patient was a man twenty-four years old, a clerk by occupation. He had had slight pain in the back for eight years, but within the past year the pain had increased and was accompanied by shortness of breath. The diagnosis had not been fully made. It was possibly a case in which lateral curvature was the chief cause of the deformity and symptoms, or it might be an instance of exaggerated round shoulders, or vertebral caries might have started the trouble.

DR. GIBNEY said he saw no indication of osteitis or tubercular disease of the spine. There was a little lateral curvature and an exaggerated anterior curve.

DR. KETCH said that the case was one which had not followed the ordinary course of lateral curvature. The general kyphosis reminded him of senile curvature which, however, rarely occurred at the age of the patient. The man had said that the pain had been so severe as to require the use of mustard plasters. It had radiated around from the back to the front under the nipples. He had never met a case of lateral curvature in which there was pain at the terminal end of nerve. He thought this was the pain of an inflammatory lesion and that the trouble was antero-posterior rather than lateral, and was getting worse. He would treat the patient for an inflammatory affection, and would advise a certain amount of rest for the spine.

DR. TESCHNER thought that the curvature was antero-posterior, and that the condition was neither tubercular, rheumatic nor osteitic, and that the pain was not necessarily due to nerve pressure, but rather to the immobility of the spine, or it might be due to indigestion. He would increase the mobility by two or three weeks of gymnastics. He thought that the patient should not be put in any kind of retentive apparatus which would hold the spine immovable. Considerable pain was present in some cases, even when the curvature was not marked. This pain was generally due to a relaxed condition and not to nerve pressure. It was a muscular pain, like that caused by stretching a muscle, analogous to that of muscular rheumatism. This could be relieved by exercising the muscles vigorously, producing a little more pain, and repeating the same thing the next day; the pain will then disappear. These cases could be cured in forty-eight to seventy-two hours if relief from pain were considered a cure. Some lateral curvature patients complained of pain only on executing certain movements, as, for instance, writing or violin playing, etc. A patient had formerly been able to play the violin from two to three hours without inconvenience. When lateral curvature appeared, she could not play for fifteen minutes without pain, but after a short treatment she could play as formerly.

DR. A. B. JUDSON thought that the case was one of lateral curvature in which the curve in the line of the spinous processes was slight, while the curve in the body of the vertebræ was probably exaggerated. This would have the same effect on the trunk as if it were compressed vertically. The trunk was shortened and the result was bulging of the chest walls, and kyphosis with a sharp anterior curvature in the lumbar spine. In a question of diagnosis, he thought that pain and other subjective symptoms were less important than the objective signs. He would treat the

patient for lateral curvature by appropriate exercises and attitudes for expanding the contents of the chest and the avoidance of fatigue.

DR. TAYLOR thought that the case was one of lateral curvature, with more than the usual pain, and with the exaggerated roundness of the shoulders sometimes found in people whose weakness induced postural deformity.

DR. T. H. MANLEY said that the history of the case pointed to some special constitutional condition which had caused the deflection of the spine. He thought that the question of syphilis should be considered. There were no evidences of a tubercular condition, but he thought that there was a rachitic element in the case. He would combine local, mechanical support with constitutional treatment by the administration of acids or iron.

UNUSUAL DISLOCATION OF THE TIBIA.

DR. TAYLOR presented a patient with unusual deformity and disability of the right knee. The patient was a woman, twenty-three years old. The trouble had begun when she was nine months old, with redness and swelling, and the knee became flexed and its motions limited. When she was ten years old the knee was injured by a fall, and has been deformed as at present ever since. There has been no abscess, and no cutting operation has been performed. There is complete dislocation of the head of the tibia backward, and abnormal lateral mobility. The bones of the knee are small, and there is about one and one-half inches of the shortening of the limb. There is considerable voluntary motion, and she can walk for a few minutes without her brace.

DR. TOWNSEND had seen a similar case, but less marked, in which the deformity was due to an inflammatory lesion without any destruction of the bone.

DR. GIBNEY recalled cases of supposed congenital dislocation of the hip in which operation had revealed results of an inflammatory process so extensive that the head of the bone was wellnigh gone. He thought the present case might have had a similar origin.

DR. MANLEY thought that the condition of the patient's knee was due to some pathological process and not to traumatism. He said that the case was a proper one for resection of the fibula and tibia. He was perfectly aware that the acuteness of the operative lacer had swept over, and that we are getting back to more salutary conservatism, but this seemed to be an ideal case for operation.

DR. TAYLOR said that the patient had declined operative treatment, and he intended to continue giving to the limb mechanical support by means of a Thomas (caliper) splint attached to the shoe, instead of extending below it. He thought that the small size of the bones was due to lack of development rather than to destruction of the bone, and that it was very improbable that this condition was produced by a fall in a healthy limb. There had been some pathological process from infancy which probably left subluxation and flexion, as usually happens in chronic inflammation of the knee, and the fall at ten years of age might have greatly increased the trouble. He had seen a patient in whom a similar condition had been caused by traction applied in the treatment of hip-joint disease. The hip was cured, but the knee was weakened so that the tibia just hung on the posterior edge of the condyles.

BOSTON SOCIETY FOR MEDICAL IMPROVEMENT.

JAMES G. MUMFORD, M.D., SECRETARY.

REGULAR Meeting, Monday, October 18, 1897, the President, DR. A. L. MASON, in the chair.

ANATOMICAL SPECIMENS.

DR. FREDERICK I. KNIGHT: I have a small specimen which is of interest because we do not often get them whole. It is a small polyp removed from the anterior part of the left vocal cord. I have not made a section of it yet, as I wanted to keep it whole, but apparently it is a papilloma. It occurred in a man who had been hoarse for two years and had been through various treatments without success. The larynx was very difficult to see on account of the pendency of the epiglottis, and he had been subjected to very severe treatment by swabbing with iodine on board one of the transatlantic steamers. When he came to me, I succeeded in getting a good view at the first session; but there was great difficulty in working on the larynx on account of this pendency of the epiglottis. If I got in any large instrument like the rectangular forceps of Mackenzie there was not space enough to illuminate so as to see the point of the instrument. But the patient fortunately was very susceptible to cocaine; and after a week or ten days I succeeded in removing this with the tube forceps; and fortunately, although not exactly pedunculated, the attachment was slight, and it came off whole, and his voice was at once restored.

I might say in passing, in regard to these growths, that very little improvement has been made in the way of managing them in the last thirty years since the invention of the laryngoscope, except in the matter of cocaine. As the older members remember, in the days before cocaine it took a very prolonged, oftentimes weeks', manipulation before one could get an instrument to the vocal cords to work successfully. Since the introduction of cocaine it is possible sometimes—I have been able to do it once—to remove the polyp in its entirety at the first interview with the patient. That, however, does not often happen; but it usually requires several days, or possibly a week or ten days, as in this case, which was one of the most difficult to work on I have ever had.

INFANTILE SCURVY.

DR. J. L. MORSE: I wish to call the attention of the members to the investigation which the American Pediatric Society has undertaken regarding infantile scurvy. As the disease is rather uncommon, the committee is very anxious to get as full a report as possible. I have here some of the blanks, which I shall be glad to give or send to any who have had cases. I shall be glad if the members will call the attention of their friends to this investigation.

PHYSICAL TRAINING IN THE SCHOOLS.

DR. WALTER CHANNING presented the report of the committee.¹

DR. C. J. BLAKE: In view of the fact that experts in physical training are present, I shall ask you to allow me to make very brief remarks. The question of physical training for children in the public schools, so admirably set forth in the report of the committee, makes the duty of a doctor in this matter very plain,

¹ See page 25 of the Journal.

since he is the authority called upon, not only in individual cases but also, so far as the general supervision of the health of the children in our schools is concerned, to give an opinion, to suggest remedies and secure prevention. The physical education in the public schools as fitting children for the work which they have to do later in life is so important that too much attention cannot be given to it on the part of those who study the subject from the doctor's point of view. One purpose is that which takes advantage of the natural play instinct of the child and turns this to good effect in the education of the individual or of the class; and the plan suggested for the use of certain games as well as certain gymnastic exercises serves to cover the ground fully. There are many games which can be used in the way suggested by Dr. Channing in his report, as illustrated by the work done by the Physical Education Society in the exhibition given under its auspices in the High School Building on Montgomery Street last winter; and it is to be hoped that there will be more exhibitions of the same kind which shall be distinctly demonstrations of what can be done in this way. So far as the length of time at disposal of the teachers is concerned, it would seem that time might be advisedly added to the school hours for the purpose of making physical training, either in the way of direct gymnastics or in the way of plays and games, a part of the regular course; and not only in our public schools, but in our larger and more advanced educational institutions should physical education be made a distinctly recognizable part of the curriculum.

DR. HARTWELL: It gives me pleasure to call attention to certain features and characteristics of the report of your committee. Although in a sense I was under investigation, it fell to my lot to aid the committee in their efforts to determine the condition of physical training in the public schools of Boston; and I desire to bear witness to the searching and deliberate and objective character of their investigations. According to my notes, the committee's visits occurred on ten separate days, and embraced fifteen different schools. The committee usually gave half a day at a time to the work. Its members saw all there was to be seen and drew their own conclusions. The schools visited embraced some of the average and poorest schools, as well as the best schools. In no instance was notice given in advance that the committee was coming; indeed it was not generally known in the schools that any investigation was in progress. On entering the school we tried further to make the sampling of the work as much a matter of chance as possible by going into rooms at haphazard, and starting the exercises on the instant, and I attach more value to the report on that account. For my own part, as this is the first opportunity I have had to make acknowledgment of the committee's zeal and interest in any formal or public way, I wish to express very emphatically my thanks to them for the thoroughness and fairness with which they conducted the investigation. It seems to me extremely important and desirable that the character of such experiments as have been conducted in physical training in the Boston schools during the past six years should be made known to the school authorities and the public by competent representatives of the medical profession, since in the minds of parents and teachers the medical profession is the court of last resort in respect to

measures whose object is the improvement of the health and bodily ability of the school population. I was not present at the hearing given by the Committee on Examinations and the Committee on Hygiene and Physical Training to the representatives of this Society and of the Boston Homeopathic Association; but I am sure that the representatives of the School Board esteemed the opportunity to confer with representative physicians. As a result of the conference, the joint committee adopted certain of the leading recommendations contained in Dr. Channing's report, and reported the order already alluded to, and the order was passed by the School Board without any opposition. Therefore I wish to emphasize the fact that the work of your committee led to positive results.

What was done in obedience to the order already alluded to had to be done at the very close of the school year, but the Board of Supervisors and the then director of physical training elaborated a plan (1) for furnishing two grammar schools which happened to have vacant rooms adapted to the purpose with a considerable amount of fixed apparatus; (2) for introducing a certain amount of portable apparatus adapted to class exercises in jumping, balancing, etc., into twelve selected schools out of the fifty-six grammar schools; and (3) for trying the experiment in a number of schools of organizing recess, the aim being to familiarize the children with games which can be played in the yards without apparatus, and with other games requiring only the simplest apparatus,—former experiments having shown that where the teachers are sympathetic and enterprising the recess-period can be more fully utilized for the purposes of active play than is usually the case.

Now as to this matter of recesses, I wonder if the medical profession recognizes how largely there has been a feeling in this neighborhood and in this State against recess? There is a rule of the Boston School Committee that there shall be twenty minutes' recess in the forenoon, but certain masters have managed to nullify it, I regret to say. It is rather a pleasant addition to one's noon-hour to close school at twenty minutes to twelve, and let that take the place of any recess except that given for marching down to the "screens" in the basement or the yard to relieve the wants of nature. I believe there are several cities in the State in which, as a matter of principle, the school children are deprived of any recess in the open air. The need of clearer views upon some of these matters is emphasized by what one occasionally meets with. I remember a case in point: One afternoon I had occasion to address the graduating class in a certain school. It happened to be Monday and the last hour of the school session; certain of the pupils left the room about a quarter of four, and the master explained that they were monitors who had to look after the filing out of the children. When I had finished at four o'clock I found the schoolhouse deserted. I said, "How is this?" "Oh, this is Monday; and on Monday all the children who have not been down to the basement during the week are allowed to go home fifteen minutes earlier," was the reply. It is still possible to find progressive men in the ranks of school-teachers whose ideas on the hygiene of school-keeping are on a level with that. In passing I venture to express the hope that the question of school-hygiene as well as the question of physical training be kept in view by

those who have the welfare of our school population at heart.

As I was saying, the tone and sentiment of the school authorities with regard to the work of physical training has been improved as a result of the investigation and the report which we are considering. Still I regret to say the request for funds to carry out the plan of the Board of Supervisors and of the Director of Physical Training for the improvement of physical training has not yet been granted. If I am correctly informed the request for funds was tabled ostensibly on the ground of lack of funds; but I have no doubt that if the committee who tabled it were made to see that there is a genuine demand for the modest degree of expansion of physical training called for in the recommendations of your committee the money would be found pretty promptly. Such tabling and holding back is quite customary with regard to most measures designed to promote the physical welfare of the school children. It should be said that the last two years have been signalized by substantial improvement in the gymnastic instruction given in the high schools. But for the efficient aid of physicians on the board that improvement would have been still longer delayed, "for lack of funds." If he will allow me to say so, it is very largely owing to the persistence and energy of Dr. Calderwood, the present chairman of the Committee on Hygiene and Physical Training, that we have been enabled to measurably increase the facilities for physical training in the high schools during the past two years. In that time the number of high school gymnasia with apparatus available for the use of girls has increased from one to five. In addition, the gymnasium in the English High and Latin School Building has been refitted and furnished with Swedish gymnastic machines. The two lower classes of the Latin School received systematic instruction in gymnastics in this gymnasium last year. The desire of the masters of the High School and of the Latin School is that a special teacher shall be put in charge of this gymnasium to devote all his time during school hours, and also a portion of the afternoon because those schools close at two o'clock, to the gymnastic instruction of such boys of the two schools as do not have military drill. The two lower classes of the Latin School do not have military drill, and there is always a considerable number of the older boys who do not drill, and hitherto no other form of physical training whatever has been provided for them. There is now a fair prospect, I think, that the policy (which I advocated in 1891) of organizing voluntary classes in gymnastics for instruction out of school hours will be inaugurated.

The situation then at the end of six years of experiment may be characterized thus: it has been shown that the regular class teachers can be trained without an inordinate expenditure of time or money to give good instruction in the line of systematic gymnastics thus far attempted, namely, in free movements without the use of apparatus in the aisles between the desks, in the corridors or in the school halls; that the masters and class teachers as a body are well affected towards the systematic work in vogue and many of them are desirous that free movements should be supplemented by exercises on apparatus for the upper classes in the grammar schools, and would welcome the provision of facilities for such exercises. The need of gymnasia and apparatus as well as of skilful teachers

for the perfect physical training of pupils in the high schools is generally conceded and gratifying progress towards meeting that need has been made, especially in the last two years. Your committee recognizes that the work in progress is good of its kind, being, from the necessity of the case, tentative and preparatory, and advises expansion and extension of the work. In so doing the committee voices a demand from outside the schools, which accords with the desires of the most intelligent and progressive teachers in the schools — which demand and desire the director of physical training has striven for six years to develop. The situation, therefore, appears to me to be a hopeful one — though I am not inclined to underrate the shortcomings of the physical education given in the Boston schools, when compared with that which obtains in Stockholm, Berlin, Frankfurt and Paris. I confess that I indulge a somewhat lively hope that it will ultimately come to pass that Boston will not be satisfied with half-way measures, but that at least the newer schoolhouses will be provided with adequate facilities for the rational and effectual promotion of the two main departments of physical training, namely, gymnastics and games.

If such societies as this will but take pains to study the teachings of experience with regard to the organization and conduct of physical education in the leading cities on the Continent, they will become convinced that Boston and Massachusetts cannot afford to lag behind the cities of Germany and Sweden and France in this matter and will be prompted to enlighten the public mind as to the desirability and the possibility of providing gymnasia and playgrounds for the rising generation, and of the necessity of placing them under the management and control of men and women of high character and approved ability. The best European experience also warrants the opinion that physical instruction and school hygiene differ so much from each other in respect to aims and method that they should be organized and administered as separate departments. The hygienic ends of physical training are important, but its pedagogical ends are of equal or even greater importance. Teachers of gymnastics should be specially trained for their duties, but so long as they are laymen they should not be permitted to usurp the functions of health officers or school hygienists. Questions relating to school diseases, to the sanitation of school premises, the use of lighting and heating apparatus, the principles of seating and other matters of hygiene should be decided by hygienists who are trained first and fundamentally as medical men. Physical training as an educational discipline is of so much importance that it should be provided for as a co-ordinate, integral part of the school course outside of the jurisdiction of health officers, sanitary inspectors, and school hygienists, just as drawing and mathematics and natural science are outside their jurisdiction.

DR CALDERWOOD: I should much prefer to listen to the other members of the Society; and I don't know really that I have very much to add to what Dr. Hartwell has told you that has been done. I do wish to thank the members of the committee from this Society for the able support given to the hygiene committee by them. I think but for that committee some of the orders which have recently passed could not have been passed in the School Board. Some of the recommendations for apparatus for the

grammar and high schools have been tabled for the time being. We expect, however, that those orders will be taken from the table and passed before the year is out. We do ask for the continual support of this committee. I don't think it would be possible to carry on all this work without outside help. There is one thing that has been mentioned that I think would help the physical training in the schools perhaps more than any other one thing, and that is better facilities at the Boston Normal School. At the present time there is absolutely no room for physical training. I was there day before yesterday during the exercises. The hall was filled, the vestibule filled and the stairs covered with girls taking the exercises. Now, of course, with a school building in that condition we can't expect much good to come to those girls who are to be the teachers of physical training in the schools. This society, it seems to me, could help the cause by advocating and insisting upon it that we have a new normal school building. Such a building has been asked for several times; but there has been a question in the School Board whether the State should take the normal school or the city continue it. The School Board recently voted not to ask the State, so that if we should have a new building then we can train our teachers for better work in the grammar and primary schools. The Latin School and the High School gymnasium, as Dr. Hartwell has told you, have recently been refitted, and the committee are on the point of selecting a director to have charge of the boys of the fifth and sixth classes in the Latin School which do not drill and those exempt from drill. The idea is to have the director drill those at some time during the school hours, and also during the afternoon if they see fit to go. I desire again to thank the members of the committee; and I hope this Society will not release this committee from further work, but that they will continue to aid the School Board Committee on Hygiene.

DR. C. H. WILLIAMS: I have been very much interested in hearing how much has been done in the way of physical training and hygiene for the preservation of health among the school children. I should like to ask whether anything is done when the children come up at the beginning of their school years in the way of examination of vision and hearing—in other words, of the means by which they must do all their school work, the means by which they acquire their knowledge. It seems to me that such examinations should be made of all pupils at the beginning of their school life, so that if defects of vision or hearing are found to exist they can be taken in hand to see what can be done to help them, rather than to have the children work along handicapped by conditions that could be helped if the cause of the trouble was only recognized. I don't know whether it is done or not, and I should like to ask Dr. Hartwell whether any examinations are made in the early school years of the vision and hearing.

DR. HARTWELL: So far as I am aware, nothing systematic is attempted in that line unless it is undertaken by the fifty physicians charged with daily inspection of the schools under the regulations of the Board of Health. The teachers are encouraged to call the attention of the visiting physician to children who appear to be defective or below par in any way. I do not think that the school physicians make a special study of defective vision in the schools. The most

we were able to do in connection with the department of physical training was this: at the request of the superintendent and of the head of the Normal School the attention of the young women of the Normal School who were to go out as teachers was called to the nature of certain defects of vision and hearing. One of the members of this Society, Dr. C. J. Blake, very kindly gave them an extremely interesting and illuminating lecture on the way in which they might detect the coarser defects of hearing in their pupils. I tried to familiarize them with certain of the coarser tests for defects in vision, in order that they might not be entirely unfamiliar with such matters. But it is not the business of any one, and never has been as far as I know, to make any kind of physical examination of the children on their entrance to school. Hygienic inspection of schools and school children is not organized anywhere in this country, as far as I know, which will bear comparison with such surveys as are made, for instance, in Paris and Brussels, Buda-Pesth and Stockholm. I should like to mention that the work in these cities is done by physicians, it is not entrusted to the directors or teachers of physical training. While we are speaking of the opportunity for usefulness open to the medical profession in connection with school affairs, I venture to say that I hope the time is not far distant when the physicians will rally once more to support the idea of having medical supervision and hygienic supervision of our school children by physicians. There is a more or less outspoken feeling among many teachers of physical training, that if they are not equal now they soon will be to taking charge of the health of the children in the schools and I believe that no graver mistake could be promoted.

DR. BLAKE: There is in one sense a permanent committee existing for the consideration of such questions as this, and this committee of the whole, as it were, is made up both of medical men and of persons practically, technically engaged in physical education, and forming the Boston Society for Advancement of Physical Education, a branch of the National Association.

THE PRESIDENT: The report of your committee is at your disposal. What action shall be taken?

DR. FOLSOM: I move it be accepted, and the thanks of the Society voted, and the committee continued on duty to co-operate with the Committee on Hygiene of the Public School Committee.

DR. CHANNING: If this committee is to continue, I think it would be desirable to add another member to it; now that Dr. Hartwell is no longer connected with the public schools, and is a member of this Society, it seems to me he would be a very valuable addition to the committee, and if he would be the chairman of it, it might in the future be of some use.

THE PRESIDENT: As the number of this committee was not limited, the Chair will ask Dr. Hartwell if he will also serve on this committee. The committee then consists of Dr. Hartwell, Dr. Channing, Dr. Bradford and Dr. Conant. The committee will be continued as announced.

A MEMORIAL OF MR. J. GREIG SMITH. — It is proposed to erect a memorial tablet within the precincts of the University of Aberdeen, to the late Mr. J. Greig Smith, professor of surgery at University College, Bristol.

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THE REPORT OF THE MEDICAL OFFICER
 OF THE LOCAL GOVERNMENT BOARD
 (ENGLAND) FOR 1895-96.

THIS report contains material of much interest to physicians, especially to sanitary officials. But, while its final date is June, 1897, much of the contents relate to a remote period.

The digest of vaccination returns is for the year 1898, and showed that in that year 16.1 per cent. of all births in England and Wales were unaccounted for as regards vaccination, as compared with an average of 11.7 per cent. for the previous five years (1888-92). The remarkable statement follows that "from returns received from the Board's own vaccinators, covering a period of fifteen years, and having concern with no less than 95,677 consecutive primary vaccinations, it has been shown that no single case of 'in susceptibility' has been met with." This portion of the report is followed by a report upon the sanitary condition of certain districts in which typhoid fever had been unusually prevalent and was as usual apparently due to polluted water-supply. An outbreak of diphtheria at Llanfynydd (in Carmarthenshire, South Wales) was shown to have been coincident with "persistent sanitary neglect, in which preventable disease, getting a foothold on the population before it is recognized, finds everything at hand to favor its fatal diffusion."

The report of Dr. Copeman is one of special interest, since he again calls attention to the prevalence of an epidemic skin disease in certain metropolitan work-houses, which he is inclined to attribute to a faulty milk-supply. In a previous report of 1893-94, a similar outbreak had been shown to be associated with a particular milk-supply, which, in four of the infected institutions, was supplied by the same contractor. Dr. Copeman's report leaves little room to doubt that the disease was identical with that which he had formerly reported, and that it was attributable to the milk-supply. Nor was there any evidence that

it was due to personal infection, or to soap or coarse clothing.

The epidemic was attended with gastric symptoms, nausea, coated tongue, loss of appetite, preceding the appearance of rash, which was also preceded by irritation, heat and tingling of the skin. The rash first appeared on the arms and hands and then became general. The epidemic ceased upon the cessation of the milk-supply from this contractor. An examination of the milk was made three days before the cessation of the epidemic, but it was not very satisfactory and resulted in the statement: "It contained material which does not properly enter into the composition of milk."

The researches of Dr. Klein, published in this volume, with reference to the subjects of protective inoculation, prophylaxis in diphtheria, and upon the germicidal element in blood serum will be studied with special interest by bacteriologists.

Dr. Kanthack presents the subject of blood serum in another aspect or use, namely, as an agent in neutralizing in a given animal toxin already produced in, or introduced into, its tissues, the poison in this instance being snake venom.

A portion of the report, of much practical importance, is that which treats of the subject of the influence of glycerine, lanoline and vaseline in inhibiting the growth of micro-organisms commonly found in vaccine lymph, by Drs. Copeman and Blaxall. The practice of employing glycerine as a means of increasing the volume of vaccine lymph without impairing its efficiency appears to have been shown as early as 1869 by Müller, and had been employed by Warlomont and by the German government at a later period; but this method appears to have been practised "without appreciation of the inhibitory actions excited by the glycerine in bringing about bacteriological purification of the lymph when the mixture is stored for some time prior to use, under conditions preventing access of air and light."

In particular experiments, when pathogenic microbes, such as the bacillus of diphtheria, the bacillus of tubercle and the streptococcus of erysipelas, were purposely mixed with the lymph material, these organisms were found to be destroyed in a month or less in a lymph emulsion containing some thirty or forty per cent. of glycerine. These experiments also show, that, whatever conveniences may at times arise from the substitution for glycerine of either vaseline or lanoline, these two latter preparations cannot replace glycerine in the important influence which that substance possesses in destroying extraneous micro-organisms found in, or added to, vaccine lymph, whilst leaving its activity for the purpose of vaccination absolutely intact.

The report is accompanied with several suggestive photographs of plate-cultures made in connection with this series of experiments.

It is pleasing to know that the Board of Health of New York City has taken up this subject in a practi-

cal manner, and is furnishing this glycerinated lymph, and that the United States Army has secured a supply from the Board.

THE ANNUAL REPORT OF THE BOSTON CITY HOSPITAL.

THE annual report of the Boston City Hospital for the year ending January 1, 1897, which has recently appeared, is of interest as giving an adequate idea of the immense amount of medical and surgical work which is being done at that institution and of the extent and scope of the improvements in the accommodations and facilities for work which is in progress there under the guidance of the board of trustees.

In the wards of the hospital during the year there were treated 8,393 patients, 3,663 in the medical, 3,560 in the surgical and the remainder in the gynecological, ophthalmic and aural services.

In the out-patient departments 20,562 patients were treated, 9,080 of these being surgical, 3,455 medical. The out-patient departments for diseases of the eye, the skin and the throat treated over 1,000 patients each; and the departments for the diseases of women, the nervous system and the ear over 500 patients each.

In addition to these, 2,145 surgical patients were treated in the accident rooms, and not included in the above figures.

The entire amount expended for the hospital proper was \$341,331.14, of which \$241,298.24 was chargeable to current expenses. The cost to the city of each patient per week was \$9.95, an extremely low average.

The capacity of the hospital at the close of the year was 512 beds in the hospital proper and 240 in the South Department for Infectious Diseases.

Much progress has been made, during last year, towards completing the hospital enlargement begun by the trustees during the previous year. The surgical operating building, as far as at present completed and in use, contains four rooms, each properly equipped and practically a duplicate of the others, for the treatment of all accident cases and out-patients at any time of day or night. There are waiting-rooms in connection with these for the friends of patients and visitors, an office for the general conduct of the surgical department, together with rooms for the preparation of surgical dressings and bandages, and storerooms. There are also two casualty wards, with a duty or service room between them, the larger one having eight beds, intended for men, and the smaller one five beds, intended for women. The building greatly facilitates the reception and prompt care of new cases, whether for admission to the hospital or for temporary care as out-patients. The casualty wards receive all accidents, large or small, except burns, that may come during the twenty-four hours, and each morning suitable cases are transferred to other wards, according to the case. This first aid to the cases gives better oppor-

tunity for observation, and helps to better classification. It also gives opportunity for patients who are seriously injured and can live only a few hours, to receive proper treatment under the most favorable conditions, without sending them to the wards, thereby subjecting other patients to the depressing effect of proximity to the dying. The wards are thoroughly and excellently equipped, and they have a nursing force both by day and by night.

The operating-rooms, on the first or main story, are five in number, only four of which, however, are used at the present time. The sterilizing room has been properly equipped, and probably has the most extensive appointments for sterilization and preparation of surgical dressings of any hospital in the country. The instrument room, room for preparation of dressings, etherizing room, and surgeons' and house-officers' consulting-rooms, make the new part almost a complete building in itself. The accommodation for large numbers of students to witness clinics and operations must wait the completion of the new amphitheatre. The largest operating room, however, has been furnished with temporary seats, and about sixty can be comfortably accommodated.

Two new surgical wards, of thirty beds each, one for male, and one for female patients, admirably equipped in every respect have been completed and occupied during the year.

During the year the installation of an electric-light plant for which \$40,000 had been appropriated was in progress; it has since been completed, and is now in operation in all the departments of the hospital.

An extensive refrigerating plant for the preservation of bodies by the ammonia process was installed in the pathological building.

A new laundry building is in process of construction.

The gynecological service has been extended by converting a male medical ward into a ward for the gynecological service.

The pathological buildings described in the previous annual report have proved adequate to the requirements of the department during the year.

In the South or Contagious Department 3,047 cases were treated, with a total death-rate of 14 per cent., and the death-rate in 1,889 cases of diphtheria was the same.

The appearance of the report has been delayed many months, apparently by the new City Printing Department.

MEDICAL NOTES.

TYPHUS FEVER AT SKYE.—A number of cases of typhus are reported at Skye, a small hamlet near Portree, Scotland. The inhabitants did not know the nature of the disease, and consequently children from infected houses were permitted to go to school. As a result, several members of the teacher's family have been stricken with the disease.

THE MODERN TREATMENT OF PROSTATIC TROUBLE.—The *Journal of the American Medical Association* perpetrates the following: Whatever may be the preferences or conclusions of surgeons regarding a choice between castration and vasotomy, one thing is very certain, that after the latter operation the patient will notice a *vas deferens*.

THE "PHILADELPHIA MEDICAL JOURNAL."—The first number of this new medical weekly is an excellent one, both as to contents and as to appearance. The arrangement of the contents is somewhat novel; the editorial comments come first, then follow in order—a selection, American news and notes, foreign news and notes, Philadelphia news and notes, the latest literature consisting of extracts from ten prominent medical journals, and last of all the original articles. The removal of the *Medical News* to New York left a place to be filled by a first-rate journal in Philadelphia, and this new journal, which is owned and governed by a Medical Board, will doubtless prove most useful to the profession. The editor, Dr. Geo. M. Gould, has much ability and experience, and the policy of the journal, as announced in the editorial columns, is very commendable.

NEW YORK.

ANNIVERSARY OF THE POST-GRADUATE MEDICAL SCHOOL AND HOSPITAL.—The thirteenth anniversary of the Post-Graduate Medical School and Hospital was celebrated on January 8th. Among the addresses made was one by Ex-Mayor Strong on "The Advantages of the Institution," and one by Prof. B. Farquhar Curtis, on "Modern Surgery." The hospital has about 200 beds, and during the year 2,403 patients, of whom 1,326 were free patients, were treated. In the dispensary department 19,017 patients were treated and 1,405 visits were made to patients at their homes.

A HEBREW HOSPITAL FOR BROOKLYN.—On January 7th application was made to the State Board of Charities for a certificate of incorporation by the Brooklyn Hebrew Hospital Society, which proposes to establish a hospital and dispensary in the Borough of Brooklyn.

REQUESTS TO THE SENEY HOSPITAL.—By the will of the late George Barlow \$17,000 is left to the Seney Hospital of Brooklyn, and in addition to this, \$5,000 to endow a free bed in memory of his mother and \$3,000 for a bed in memory of a deceased child.

A CENTENARIAN DANCES A JIG.—On New Year's Day, Nicholas McQuillan, of Southold, Long Island, celebrated the one hundredth anniversary of his birth, and in the presence of a number of friends and neighbors who had assembled to do honor to the occasion, danced an old-time Irish jig in company with his sister who is ninety years old. He was born in County Meath, Ireland, January 1, 1798, and did not come to America until 1864. He has always enjoyed vigorous health, and until recently worked at his trade, that of a weaver. His eldest son, himself a grandfather, is now 76 years old.

OVERCROWDING IN THE STATE CHARITABLE INSTITUTIONS.—When two years ago the care of the city's insane was transferred to the State, it was promised that they should be given accommodations equal to those enjoyed by the inmates of the hospitals in other parts of the State. But as yet little has been accomplished in that direction. The buildings on Hart's Island, which are frame structures that were originally built for barracks and temporary shelters for prisoners during the war, are totally unfit for their present uses, and these, as well as the buildings on the other islands, still remain very badly overcrowded. The Governor of the State, having been informed that "the beds were so close in these institutions that a bicycle could be ridden from one end of the wards to the other over them without a break," recently made up his mind to make a personal inspection of the state of affairs, and accordingly, on December 22d, accompanied by a number of officials, he visited the different islands. As a result of this visit it is to be hoped that suitable measures to remedy the existing evils will be taken by the authorities. It is stated that on Ward's Island, in the male hospital, with a normal capacity for 1,300, there are 2,180 inmates, and in the female hospital, with a normal capacity of 900, there are 1,367. In the hospital on Hart's Island, with a capacity for 1,000, there are 1,500 inmates, and in that on Blackwell's Island, with a capacity for 600, there are 889 inmates.

OVERCROWDING AT THE HARLEM HOSPITAL.—Another institution that is badly overcrowded is the Harlem Hospital, at the foot of East 120th Street. Although the hospital has only 39 beds, more than 6,000 patients have been brought in for treatment by the ambulances during the past year, from three to seven emergency patients are laid in stretchers upon the floor each night because there are no beds for them, and hundreds of patients whose condition demands absolute rest have to be transferred to Bellevue or the City Hospital on Blackwell's Island, at whatever risk, on account of the lack of accommodations. The Harlem Hospital ranks third in the city in the receipt of emergency cases, yet the building has no private wards, and maternity cases have to be attended to in the main ward.

THE SOCIETY OF COLLEGE GYMNASIUM DIRECTORS.—A meeting of the Society of College Gymnasium Directors, which was organized during the past autumn, was held on December 31st at the Knickerbocker Athletic Club. The institutions personally represented were Amherst, Yale, Johns Hopkins, Dartmouth, University of Virginia, Rutgers, Trinity, and the University of Pennsylvania, and the organization was completed by the election of the following officers: President, Dr. J. W. Seaver, of Yale; Vice-President, Dr. C. P. Linhart, Ohio State University; Secretary and Treasurer, Dr. J. L. Savage, Columbia; additional members of the Council, Dr. D. A. Sargent, Harvard, and Prof. F. H. Conn, University of the City of New York. It was

agreed that uniformity in the matter of measuring the strength of students entering the different colleges would be of much assistance to the directors of physical development, and a plan of measurement submitted by a Committee on Strength Tests was in general approved. This plan, however, is subject to possible modifications, and the explicit directions for measurements will not be definitely determined until the next meeting of the Society. It was found impossible to complete the hearing of the Committee on Terminology, appointed to select names for each form of exercise, and this matter will also be subsequently determined upon. The committee consists of Drs. Anderson of Yale, Sargent of Harvard, and Goldie of Princeton.

REQUESTS TO HOSPITALS.—By the will of Charles H. Coutoit, a wealthy bachelor who died in December, almost his entire estate, valued at over \$1,000,000, is left to nineteen religious and charitable institutions, all of which are to receive an equal share of the estate. Among these institutions are St. Luke's Hospital, St. Luke's Home, Home for Incurables, St. Mary's Free Hospital for Children and the House of Rest for Consumptives. Since the will was made the last-named institution has been incorporated with St. Luke's Hospital.

DEATH OF DR. HEUEL.—Dr. Franz Heuel, one of the oldest and best-known practitioners in the city, died on January 4th. He was born in Westphalia, August 4, 1818, and while a student at the University of Berlin, took part in the revolutionary movement of 1848; in consequence of which he was obliged to take refuge in America. He was graduated from the College of Medicine of the City of New York in 1851.

DEATH OF ELTON J. SHEROW.—Dr. Elton J. Sherow, a young physician of great promise, died on January 1st, from an overdose of cocaine, to the use of which he had unfortunately become addicted. He was born in Sing Sing, N. Y., twenty-eight years ago, and was graduated from the College of Physicians and Surgeons, New York, in 1890. He afterwards served as interne at St. Luke's Hospital, and later in the Nursery and Child's Hospital.

Epitellap.

POST-MORTEM DELIVERY.

"In German medical literature is found a term for which, as far as we are aware, there is no English equivalent, namely, *Sarggeburt*, which literally translated means "coffin-birth"—that is to say, that a pregnant woman dies and the body is placed in a coffin, and then before or after burial delivery takes place. Very few cases of this kind are on record. A notable case, however, is recorded by Dr. Bleich, of Tschirnau.¹

"Before proceeding to describe the case Dr. Bleich

¹ Vierteljahrsschrift für gerichtliche Medizin und öffentliches Sanitätswesen, 3. Folge, Band xlv, p. 2.

makes some remarks on the theories that have been advanced to account for the causes which bring about post-mortem delivery, and states that two explanations have been advanced: the first supposes that the pressure produced in the abdomen by the gases evolved in post-mortem decomposition is sufficient to cause the expulsion of the uterine contents, whilst the second suggests that the necessary force is brought about by the condition of rigor mortis into which the muscular structure of the womb is thrown.

"Proceeding then to a description of the case which he himself observed, Dr. Bleich records that on July 6th the dead body of a woman was found lying in a shallow pool of water. It was ascertained that she had escaped from her home in a state of insanity. On examination no signs of injury could be found with the exception of slight bruises on the knees; it was found that she was pregnant, probably in about the seventh month. Post-mortem rigidity was present; a few post-mortem stains were found on the back. It was concluded that the body had only been a short time in the water and that all the evidence pointed to suicide, and the burial took place on July 9th. Eight days after the finding of the body it was ascertained that three young laborers had had sexual intercourse with the deceased woman shortly after one another. They were arrested and closely questioned, and all three persistently denied that any criminal force had been used, but, on the contrary, said that the woman had been a consenting party. Exhumation of the body was ordered, and a post-mortem examination was made on July 19th. Delivery was found to have taken place after the coffin had been closed, with complete inversion and prolapse of the uterus and vagina.

"A full account of the necropsy is given in Dr. Bleich's paper. We can only give a brief abstract. The abdomen was greatly distended but exhibited no signs of injury. Between the thighs lay a dark-red mass (the uterus) about the size of a head, from the under side of which sprang a dark umbilical cord, and connected with the latter was the body of a child 36 cm. in length. The vulva was wide open. The uterus was flabby and like a sac, and lay with its inner surface pressed against the thighs together with the vagina; the placenta had separated, and was dark-brown in color and of a hard consistence. The muscular walls were thin and brittle.

"Dr. Bleich suggests that the violence experienced by the woman shortly before death had been of such a nature as to render abortion probable, and that the collection of the gases of decomposition in the abdomen had been sufficient to complete that process and also cause the condition of the uterus found on the exhumation of the body."—*The Lancet*.

Obituary.

GEORGE CARROLL DOLLIVER, M.D.

GEORGE C. DOLLIVER was born in Gloucester, September 29, 1869, and was educated in the public schools of that city, graduating in 1887 from the high school and entering Tufts College with the expectation of studying medicine at the termination of his college course. In college he distinguished himself most in the natural sciences, and in 1891 obtained the degree of Ph.B. from this institution. In the fall of 1891 he entered Harvard Medical

School, from which he obtained the M.D. degree in 1895. Before graduating he began his service as surgical interne at the Massachusetts General Hospital, and followed this by a similar service at the Lying-in Hospital, his service terminating in May, 1896, at which time he began the practice of medicine in Boston.

His ability received recognition in many ways, most conspicuous among which being his appointment as assistant in obstetrics at the Harvard Medical School. In September, 1896, he was married to Miss Helen G. Hopkins, of Arlington.

Hardly any further comment upon his character need be made, when it is known that for many months before his death he had to face practically certain death, and if not that, blindness or an invalidism which would have removed him from all activity in his profession, and yet he did it as I am sure but few could.

Twenty-eight years are all too short, it seems, when spent only in preparation for one's chosen profession; but as we study nature we see but little waste in her effort, and must rest content that this life's energy is to be utilized in inculcating in those who have had the privilege of association with him the truth and ripened character which we know him to have possessed.

The development of character is the standard by which we must all be judged, and by such tests he certainly would have found no superior among his associates.

High aims and faithfulness to duty characterized him in his professional life, and won for him a recognition much to be envied; consideration for others and fidelity in all his family and social relations had always been an object of admiration in those who sustained such relations with him.

May his example be ever a means directed to the betterment of the conditions in which we live, as he would have wished it might, and as he was striving that it should.

JOSEPH O'DWYER, M.D.

DR. JOSEPH O'DWYER, who achieved an international reputation by demonstrating the practical applicability of intubation of the larynx as a substitute for tracheotomy, died of tubercular meningitis on January 7th, at the age of fifty-five. When he was attacked by his last illness he made the diagnosis of the disease, which was confirmed by Drs. Delafeld and M. Allen Starr, and at once recognized the hopelessness of his case.

Dr. O'Dwyer was for many years associated, as visiting physician to the New York Foundling Asylum, with the late Dr. J. Lewis Smith and the late Dr. Charles Carroll Lee, and it was in the ample clinical field afforded by the wards of this institution that intubation was established on a firm basis by himself and later by Dr. W. W. Northrup in conjunction with him. He was a graduate of the College of Physicians and Surgeons, New York, in the year 1866, and was as remarkable for his modesty as for high attainments.

MR. ERNEST HART.

ERNEST HART, editor of the *British Medical Journal*, died in London on January 7th. He was born in June, 1836. He was educated at the City of London School and the School of Medicine attached to St. George's Hospital. At one time he was ophthalmic surgeon and lecturer on ophthalmology at St. Mary's Hospital. He rendered great service in exposing defective arrangements for sick poor in workhouses, his efforts leading to the passage of Hart's Act and the creation of the Metropolitan Asylums Board. His reports on criminal baby farming in 1868 led to the passing of the Infant Life Protection Act.

Mr. Hart was Honorary Chairman of the National

Health Society and President of the Medical Sicknes, Annuity and Life Assurance Society. He was appointed editor of the *British Medical Journal* in 1866, and for several years was responsible for the editorial conduct of the *Sanitary Record* and the *London Medical Record*.

In addition to his ordinary editorial contributions he published fifteen or more pamphlets, among them "The Mosaic Code of Sanitation," "The Sanitary Needs of India," "The Nurseries of Cholera," "Regulation and Registration of Plumbers," "The Truth About Vaccination," "Hypnotism, Mesmerism and the New Witchcraft," "Water-Borne Typhoid," and "Hospitals of the State." He was particularly interested in Japan, and made an interesting collection of ancient Japanese objects of art.

DR. ZACHARIN.

DR. ZACHARIN, the eccentric physician to the late Czar Alexander III, and lecturer on the functions of the heart at the Imperial College of Medicine at Moscow, died January 5th. He gained notoriety in 1894 on account of his controversies with Dr. Leyden of Berlin, and other physicians who were called in consultation, with regard to the diagnosis and treatment of the czar's fatal illness. He refused to sign the official report of the czar's death and threatened to leave Licadia, where the czar died and return to Moscow. He was prevented from doing this only by a command from General Tischer. So bitter had been the disputes among the consulting doctors, and so pronounced had been Zacharin's eccentric actions, that the death of the czar was indirectly laid at his door, and when news of the passing of Alexander III reached Moscow a crowd of people, urged on by students, tore down the doctor's house and burned his furniture in the street. The new Czar Nicholas II, however, soon forgave him, and made him a present of a jewelled snuff-box, and the students gave him an enthusiastic welcome.

Dr. Zacharin was eccentric in his dress, and was brusque and exacting with his patients, compelling them to sit motionless before him, and not to irritate his sensitive nervous system.

His fees were exorbitant and in addition to the payment of these he demanded, even of patients of the highest rank, that all his whims be respected. He compelled the czar to alter the arrangement of the furniture in the rooms he occupied in the palace.

He is said to have declined to lunch with the czarina, on the ground that he was not in the habit of taking his meals with women, and to have attended the czar in a dressing-gown and a peasant's top boots.

Correspondence.

DERMATOLOGY IN LONDON.

LONDON, December, 1897.

MR. EDITOR:—The first thing that impresses one in a London dermatological clinic is the extreme courtesy shown the visitor, and the second is the kindness toward the poor patient and the thorough and painstaking examination of the case. Drs. Fox, Crocker, Fringle and Galloway have exceedingly interesting clinics, and are all extremely kind in showing them to the stranger. Dr. Galloway, by the way, has just returned from America, and retains a very pleasant remembrance of a week spent in Boston.

One sees here all sorts of dermatoses, but outside of the ordinary cases of eczema and psoriasis, the most frequently recurring are ringworm of the scalp and alopecia areata. Over 90 per cent. of the ringworm cases belong to the microsporon fungus, and are exceedingly persistent and extremely hard to cure. The British medical journals seem

with articles recommending remedies quick and certain in their action, but, unfortunately, these articles are never written by dermatologists. The trouble is that the fungus dives down into the hair follicle, and is very hard to reach by any form of medicament. The treatment most in vogue at present is the irritative one. Dr. T. Colcott Fox uses, for instance, after the hair has been shaven, formalin in dilute solution with water, commencing with one part of formalin to eight or ten of water, increasing the strength, if needful, later. This solution is thoroughly rubbed into the scalp every day until an active inflammation is set up, and the fungus is finally gotten rid of by the subsequent separation of the crusts formed. The same result may be obtained by the use of croton oil (one gramme) to the ounce of any of the parasitic ointments. This treatment simulates nature which sometimes spontaneously cures by the formation of kerion. The danger is that abscesses may be caused, but this rarely happens in careful and experienced hands.

Saboraud's theories and conclusions in regard to alopecia areata are discussed in all the clinics. Dr. George Pernet, of the University Hospital, is inclined to favor the microbic origin of this disease, and makes inquiries of all patients as to use of the barbers' clipping machines. He considers the *tondense* a remarkably difficult instrument to sterilize, and believes that it might easily be the carrier of infection. He always searches for the stumpy hairs with their atrophied bulbs, which have been so frequently described—the note-of-exclamation hairs, as they are here called—and likes to demonstrate them under a hand-lens. He believes that they are not only pathognomonic of alopecia areata, but also of strong prognostic value, as their presence denotes activity of the disease, while their absence shows that repair has already begun. There is nothing in the treatment of this condition which differs materially from our own methods.

Psoriasis presents the same difficulties in treatment that it does everywhere else. Dr. Pringle says that, even at the risk of being called old fashioned, he is inclined to favor arsenic pushed to its physiological limits. Dr. Radcliffe Crocker gets the best results from salicin. His average dose for an adult is ten grains three times a day, although he may sometimes commence with smaller quantities. He says that any disease which we have reason to believe may be due to a microbe in the circulation may be benefited by salicin. Thyroid extract, as a remedy for psoriasis, is quite generally discarded, although Dr. Crocker thinks that in some rare cases it may be of benefit. It should not be used in a very active case, because it might increase the activity of the lesions. Neither would it be of benefit in a very chronic case. But he believes that in an intermediate, quiescent state it may do good. In fact, as he says, it is sometimes worth trying, if the patient be robust, because, once in a while, it affects the disease favorably when nothing else will. The chief use for thyroid, however, is in lupus vulgaris. It is used here constantly for lupus, and is generally of value. It does not absolutely destroy the tubercle bacilli, but certainly does check them and prevent the growth of the disease. It is used in all the clinics, and, seemingly, without fear of untoward effects. An ordinarily healthy adult generally takes five grains a day in starting, and increases the dose until he reaches the same amount three times daily. Sometimes the remedy is pushed much higher than this, although in out-patient practice, where the patient cannot be properly watched, it is rarely safe to go beyond the five-grain limit. Unquestionably good results are obtained in very severe cases of lupus vulgaris.

Eczemas, of course, form the great bulk of the cases seen. For seborrheic eczemas, a mild mercurial ointment is most in favor; generally, the ammoniated or the red oxide is used. In dry, cracking eczema of the hands and fingers, Dr. Crocker uses with advantage a solution of the glycerole of subacetate of lead in water, in a strength of about one to eight. Cloths are kept constantly wet in this solution and wrapped around the affected parts.

For old, severe eczemas of the legs, Dr. Fox prefers a

modification of Unna's glycerine jelly, which he keeps constantly prepared in the out-patient department. His favorite formula is:

R	Gelatine	15 parts
	Zinc oxid	10 "
	Glycerine	30 "
	Aqua	45 "

Cautiously melt and combine and add to the mass ichthyol two per cent.

This formula may be modified in various ways to suit the patient. Such a preparation may be kept in an ordinary glue-pot, and heated, when needed, over any kind of burner or spirit lamp.

If there be any open ulcers on the leg, they may be covered with a bit of gauze. The warm jelly is then painted thickly over the eczematous portions, a dusting powder is applied, to take away the stickiness, or else the hardening application may be sopped over with a bit of absorbent cotton, and a firm bandage is placed over the whole leg. After the jelly has been applied, the ulcers may be uncovered, and dressed in any way that the medical attendant wishes. Holes may be cut in the bandage, through which they may be treated every day if necessary. The patient is then sent home, after being enjoined not to disturb the bandage for a week.

This method is considered valuable in private practice, for out-of-town patients who cannot be seen every day. Dr. Fox thinks it superior to the use of plasters, because it does not retain the secretions, and because it cannot be removed and reapplied by the patient. The temptation to scratch is at least lessened, and the bandage is a positive benefit because it gives support to what is generally, more or less, an edematous leg. In eczema capitis of young babies, an old and favorite English remedy is a thin oatmeal water, well boiled and strained. This is soaked on plentifully, to remove crusts, after which any suitable application may be used.

As a matter of fact, I believe that the English clinic has been, perhaps, too much ignored by our students. As I have said, the various hospital physicians are extremely courteous. They are, besides, able and scientific. They do not content themselves with a mere superficial view of the skin lesion, and affect to form a ready and certain diagnosis by gross appearances and treat accordingly, but examine carefully into the peculiarities of the individual, his antecedents, habits and occupation. Tedious stories from garrulous patients are often listened to, but sometimes an important bit of information is gained during the narration. In short, they are not only dermatologists, but also good, all-round, practical physicians, who are thoroughly capable of examining and explaining a case in all its bearings.

Very truly yours,

WM. G. MACDONALD, M.D.

METEOROLOGICAL RECORD

For the week ending January 1st, in Boston, according to observations furnished by Sergeant J. W. Smith, of the United States Signal Corps:—

Date.	Baro- meter	Thermom- eter.			Relative humidity.		Direction of wind.		Velocity of wind.		We'th'r. *		Rainfall in inches.	
	Daily mean.	Daily mean.	Maximum.	Minimum.	8.00 A. M.	8.00 P. M.	Daily mean.	8.00 A. M.	8.00 P. M.	8.00 A. M.	8.00 P. M.			
S...26	29.89	30	32	28	89	100	94	S.W.	N.	8	7	O.	R.	.26
M...27	29.99	29	35	23	77	76	76	W.	W.	13	18	C.	C.	
T...28	30.36	20	25	15	55	65	59	W.	N.W.	11	4	C.	C.	
W...29	30.22	20	27	12	64	61	62	W.	S.	9	10	C.	O.	
T...30	29.77	36	17	26	83	64	73	S.W.	S.W.	12	12	O.	F.	.07
F...31	29.62	37	40	34	80	100	90	W.	N.E.	6	16	O.	R.	.34
S...1	29.44	30	44	16	88	79	84	N.W.	N.W.	22	20	F.	C.	.13

* O., cloudy; C., clear; F., fair; G., fog; H., hazy; S., smoky; R., rain; T., threatening; N., snow. † Indicates trace of rainfall. — Mean for week.

RECORD OF MORTALITY
FOR THE WEEK ENDING SATURDAY, JANUARY 1, 1898.

Cities.	Estimated population.	Reported deaths in each.	Deaths under five years.	Percentage of deaths from				
				Infectious diseases.	Acute lung diseases.	Typhoid fever.	Diphtheria and croup.	Scarlet fever.
New York	1,868,060	733	242	10.08	18.76	.84	1.12	2.80
Chicago	1,619,226	—	—	—	—	—	—	—
Philadelphia	1,214,256	481	126	12.98	10.58	1.98	1.92	.68
Brooklyn	1,160,000	400	164	12.50	17.75	1.75	6.00	1.25
St. Louis	570,000	—	—	—	—	—	—	—
Baltimore	550,000	173	53	7.67	13.57	.59	4.72	—
Boston	517,732	194	49	6.24	17.85	1.53	3.08	—
Cincinnati	405,000	115	21	5.16	12.90	1.72	3.44	—
Cleveland	380,000	91	28	5.50	18.20	—	2.20	—
Pittsburg	285,000	96	32	24.96	14.56	9.36	5.20	1.04
Washington	277,000	100	25	11.00	14.00	4.00	3.00	—
Milwaukee	275,000	—	—	—	—	—	—	—
Nashville	105,050	35	8	2.85	17.10	2.85	—	—
Worcester	105,050	18	1	5.55	27.77	—	—	—
Fall River	95,919	26	12	15.40	22.10	—	3.85	—
Lowell	87,193	29	11	6.90	17.25	—	3.45	—
Cambridge	86,812	29	7	6.90	13.45	—	3.45	—
Lynn	65,220	13	—	6.79	—	—	—	—
Charleston	65,165	50	15	14.00	10.00	4.00	—	—
New Bedford	62,416	20	7	—	15.00	—	—	—
Lawrence	55,510	—	—	—	—	—	—	—
Springfield	54,790	12	3	—	8.33	—	—	—
Holyoke	42,364	—	—	—	—	—	—	—
Portland	40,000	—	—	—	—	—	—	—
Salem	36,062	6	0	—	33.33	—	—	—
Brockton	35,853	—	—	—	—	—	—	—
Malden	32,894	8	2	12.50	37.50	12.50	—	—
Chelsea	32,716	14	1	—	—	—	—	—
Haverhill	31,406	10	3	—	20.00	—	—	—
Gloucester	29,775	—	—	—	—	—	—	—
Newton	28,990	5	2	40.00	—	—	—	40.00
Fitchburg	28,392	5	1	—	20.00	—	—	—
Taunton	27,812	11	1	—	—	—	—	—
Quincy	22,562	—	—	—	—	—	—	—
Pittsfield	21,891	—	—	—	—	—	—	—
Waltham	21,812	3	1	33.33	33.33	—	33.33	—
Everett	21,575	8	2	12.50	—	—	—	12.50
Northampton	17,448	—	—	—	—	—	—	—
Newburyport	14,794	3	1	—	—	—	—	—
Amesbury	10,920	—	—	—	—	—	—	—

Deaths reported 2,750; under five years of age 832; principal infectious diseases (small-pox, measles, diphtheria and croup, cerebro-spinal meningitis, diarrheal diseases, whooping-cough, erysipelas and fevers) 281, acute lung diseases 427, consumption 333, diphtheria and croup 114, typhoid fever 49, scarlet fever 34, diarrheal diseases 31, measles 21, whooping-cough 15, cerebro-spinal meningitis 6, malarial fever 6, erysipelas 5.

From diarrheal diseases New York 6, Pittsburg 5, Philadelphia, Baltimore, Charleston and Fall River 3 each, Brooklyn and Cleveland 2 each, Washington, Providence, Lowell and Cambridge 1 each. From measles New York 8, Philadelphia and Pittsburg 5 each, Brooklyn 3. From whooping-cough New York 6, Brooklyn 4, Philadelphia, Boston, Washington, Worcester and Cambridge 1 each. From cerebro-spinal meningitis Pittsburg and Washington 2 each, New York and Chelsea 1 each. From malarial fever New York and Philadelphia 2 each, Brooklyn and Charleston 1 each. From erysipelas New York, Baltimore, Boston, Cleveland and Charleston 1 each.

In the thirty-three greater towns of England and Wales, with an estimated population of 10,992,524, for the week ending December 25th, the death-rate was 17.7. Deaths reported 3,730; acute diseases of the respiratory organs (London) 352, measles 199, whooping-cough 102, diphtheria 89, fever 33, scarlet fever 30, diarrhea 27.

The death-rates ranged from 9.0 in Croydon to 26.5 in Swansea; Birmingham 17.1, Bradford 17.8, Cardiff 16.9, Gateshead 13.9, Hull 15.3, Leeds 17.7, Leicester 15.4, Liverpool 17.7, London 18.2, Manchester 19.8, Newcastle-on-Tyne 16.3, Nottingham 19.9, Portsmouth 14.9, Sheffield 19.9, Sunderland 17.2.

OFFICIAL LIST OF CHANGES IN THE STATIONS AND DUTIES OF OFFICERS SERVING IN THE MEDICAL DEPARTMENT, U. S. ARMY, FROM JANUARY 1, 1898, TO JANUARY 7, 1898.

The leave of absence granted MAJOR LOUIS BRECHEMIN, surgeon, Fort Sherman, Idaho, is extended two months.

The leave of absence granted CAPTAIN WILLIAM O. OWEN, assistant surgeon, is extended one month.

Leave of absence for one month, on surgeon's certificate of disability, with permission to leave the Department of the East, is granted MAJOR CHARLES K. WINNE, surgeon, Fort McHenry, Md.

FIRST-LIEUT. DRANE C. HOWARD, assistant surgeon, will be relieved from duty in the Department of Dakota when his services are no longer required at Fort Custer, Mon., and will proceed to Fort Crook, Neb., and report for duty at that post.

CAPTAIN CHARLES F. MASON, assistant surgeon, U. S. Military Academy, West Point, N. Y., is granted leave of absence for two months and seven days.

OFFICIAL LIST OF CHANGES IN THE MEDICAL CORPS OF THE U. S. NAVY FOR THE WEEK ENDING JANUARY 8, 1898.

A. FARNHOLT, passed assistant surgeon, detached from the New York Navy Yard and ordered to the Puget Sound Naval Station.

F. W. OLCOTT, passed assistant surgeon, detached from duty at the Puget Sound Naval Station and ordered to the "Mohican."

T. W. RICHARDS, assistant surgeon, ordered to examination for promotion January 17th, and to the New York Navy Yard.

OFFICIAL LIST OF CHANGES OF STATIONS AND DUTIES OF COMMISSIONED OFFICERS OF THE UNITED STATES MARINE-HOSPITAL SERVICE FOR THE SEVEN DAYS ENDING DECEMBER 30, 1897.

CARTER, H. R., surgeon. To report at Bureau, January 3, 1898, preliminary to return South. December 29, 1897.

WHITE, J. H., passed assistant surgeon. To report at Bureau January 3, 1898, preliminary to return South. December 29, 1897.

BOARD CONVENED.

Board convened to meet in Washington, D. C., January 25, 1898, for the examination of applicants for appointment as assistant surgeon in the Marine-Hospital Service.

DETAIL FOR THE BOARD.

H. W. AUSTIN, surgeon, Chairman; FAIRFAX IRWIN, surgeon, G. T. VAUGHAN, passed assistant surgeon, Recorder.

APPOINTMENT.

JOHN Q. A. MCCOLLESTER, M.D., of Waltham, Mass., has been appointed a U. S. Pension Examining Surgeon.

SOCIETY NOTICE.

SUFFOLK DISTRICT MEDICAL SOCIETY.—The Section for Clinical Medicine, Pathology and Hygiene. There will be a regular meeting of the Society at 19 Boylston Place, Wednesday, January 19th, at 8 o'clock.

At 8 o'clock. Short communications by Drs. Brackett, Lord and Morse.

At 8.30 o'clock. Paper: "Yellow Fever," Drs. W. W. Gannett and W. T. Councilman.

E. W. TAYLOR, M.D., Secretary, 416 Marlborough St.

TALKS ON THE HISTORY OF MEDICINE.

Dr. David Hunt, of Boston, will give informal lectures on "The History of Medicine," by invitation of the Harvard Medical Alumni Association, at the Harvard Medical School on Thursdays, January 13th, 20th, 27th, at 8 P. M. The profession and the students of the Harvard Medical School are cordially invited to attend.

J. S. STONE, M.D., Secretary.

BOOKS AND PAMPHLETS RECEIVED.

Anti-Streptococcus Serum. By C. P. Thomas, M.D., Spokane, Wash. Reprint. 1897.

A Plea for a Uniform Diastase Test. Diastase in Therapeutics. By C. C. Fite, M.D., New York. Reprint. 1897.

A Case of Leucæmia. By J. H. Musser, M.D., and Joseph Sailer, M.D., Philadelphia. Reprint. 1896.

The Thyroid-Gland Treatment of Cretinism, with Report of a Case. By Samuel H. Friend, M.D., Milwaukee, Wis. Reprint. 1897.

Resection and Advancement of the Levator Palpebræ Muscle in Traumatic Ptosis. By Charles A. Oliver, A.M., M.D., Philadelphia. Reprint. 1897.

A Clinical Study of Widal's Serum Diagnosis of Typhoid Fever. By John H. Musser, M.D., and John M. Swan, M.D., Philadelphia, Pa. Reprint. 1897.

Supplementary Croonian Lecture on Points Connected with the Pathology and Treatment of Diabetes. By F. W. Pavy, M.D., LL.D., F.R.S., Consulting Physician to Guy's Hospital, London. Reprint. 1897.

Original Articles.

ON VULVO-VAGINITIS IN CHILDREN.¹

BY MALCOLM STORER, M.D.

WHILE, thanks perhaps to better hygienic conditions, this disease is less common here than is the case in certain foreign cities (86 cases in 8,481 girls seen by Pott, of Halle), cases are fairly numerous; and as quite a number have happened to come within my personal observation, I have thought it worth while to bring the subject before you in brief form to-night.

Mothers often fail to recognize the importance of a vulvar discharge in a child. While doing district work I frequently ran across cases by accident while examining children for other diseases. I remember one woman whom I could persuade only with difficulty to submit such a case to treatment; for, she said, all her other children had had such discharges and got well of themselves. So they had, but only after a year or two of suffering. I had recently brought to me for incontinence a child in whom a quite severe vaginitis had existed untreated for nearly four years.

As to etiology, cases will fall into two main groups — those due to lowered vitality, and those due to infection.

It is not seldom that we see vaginal discharges in poorly nourished children, especially in those living under bad sanitary conditions. This discharge, milky or nearly colorless, with little or no irritation of the vulva and no urethritis, seems almost a reflex of the poor general condition, without any specific infection. These children are apt to be scrofulous or syphilitic. One in eight of Pott's cases had congenital syphilis. We know how obstinate a simple leucorrhea sometimes is in adults, in phthisis and other wasting diseases. The vagina is normally a nest of bacteria, even after the first bath (Stroganoff); and it seems probable that under such conditions organisms ordinarily innocuous may cause irritation. It is quite possible that decomposing smegma may be the starting-point, as Pozzi suggests. In these cases the microscope will show only single bacteria of various kinds.

Most cases, however, come into the infectious group, which must be still further subdivided into traumatic and gonorrheal.

Traumatic vulvo-vaginitis may follow attempts at rape, violent masturbation, blows on the genitalia, scratching by dirty finger-nails to allay irritation, etc. Probably the cases ascribed to ascarides and other worms are of this nature, the worms being merely accidentally transferred from the anus to the vagina by the same fingers that start the vaginitis.

A history of trauma is to be received with suspicion until gonorrhea can be excluded. Some months ago I saw a well-nourished girl of four who had a copious, irritating, greenish leucorrhea, with the history that a week before its being noticed she had been struck violently in the genitals by a baseball, and that great pain and dysuria had persisted ever since; yet the microscope showed gonococci in abundance, and although I was unable to determine the source of infection, the case was clinically a typical gonorrhea, with urethri-

are probably due to diplococci closely resembling the gonococcus — that called by Heiman the diplococcus colpitis catarrhalis, for instance, which differs from the gonococcus chiefly in that it does not discolor by Gram's stain. These cases, according to Heiman, do not follow the course of true gonorrhea, the urethra is seldom involved, and they tend to recover spontaneously. While some cases may be due to this diplococcus, the fact remains that by far the greater part of those we see are gonorrhea pure and simple. Cahen-Brach found the gonococcus in 20 out of 21 cases; Dusch, in all of 19; Duprè, quoted by Séé, in all of 23. The cases I have happened to see have been gonorrheal almost without exception. The fact that apparently all possible sources of infection can be excluded is of little value. In such a case Martin found gonococci, and when some of the pus was introduced into a man's urethra, a florid gonorrhea resulted. With persistent questioning one can generally find what would be at least a possible source of gonorrhea; nor is this surprising considering its widespread existence, its highly contagious nature, the lack of cleanliness among the lower classes, and especially the habit many mothers have of sleeping with the latest born, while in the more intelligent classes a child is always at the mercy of a careless nurse.

Infection may be direct or indirect. The infant may possibly become infected at birth by a gonorrheal mother, or later through attempts at rape; but direct infection is vastly less common than indirect. Of 50 cases of Fisher, 49 were indirect. In 86 of Pott, only three followed attempted rape. I have seen only one case of surely direct infection; a girl of four becoming infected by a gonorrheal brother of very tender age, seven, I think. In a second recent case a girl of six slept with a brother of twelve. I did not have an opportunity to examine the brother, but according to his mother he was perfectly healthy; while, on the other hand, it appeared that on several occasions the janitor had taken improper liberties with the child with his fingers, which very probably were not above suspicion. The etiology of these cases may under certain conditions — the question of attempted rape, for instance — be of great medico-legal importance; but possible indirect sources are so numerous that the existence of a gonorrhea in a child, without other evidences of possible connection, would have, I should think, less weight in substantiating a charge of rape against an individual known to have the disease than would appear at first sight.

Infection may occur in countless ways, such as the use in common of various toilet articles (towels, sponges or soap), or even from bathing in infected water, from sheets, etc., when sleeping in the same bed with infected persons, masturbation with infected fingers or implements, from infected water-closets, chamber vessels, etc. It will be enough to mention some of the classic epidemics. Thus, Suchard had 12 cases due to the use in common of an infected towel. Weil reported an epidemic in which every child in a certain ward, 30 in all, was infected by a rectal thermometer used upon all without being washed. Skutsch reported 236 cases in school-girls, due to the use of a public bath in which it was customary for a large number of persons to bathe in the same water. Sheffield had a similar experience, having 35 cases occur in an institution in which it was customary for 30 children to bathe in the same tub. Some writers go so far as to claim that even most of

¹ The second division of the infectious cases come due to the gonococcus. To be sure, some cases

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the cases occurring in the course of exanthems are gonorrheal, the hyperemia of the mucous membrane of the genitals due to the disease making it too receptive to germs that under ordinary conditions it could withstand.

In gonorrhea in children the urethra is apparently quite as apt to be invaded as is the case in the adult, and, conversely, a urethritis is proof of a given case being gonorrheal. There was an obstinate urethritis in 17 out of 21 cases seen by Prochownik, and this proportion has nearly been maintained in my own experience. On the other hand, painful urination is not by any means proof positive of an urethritis, as the pain may be due merely to concentrated urine passing over the inflamed vulva, nor does an apparent hematuria always imply an urethritis. In a recent case of mine in which there was no urethritis the reported bloody urine was found due to an admixture of the sanguineous vulvar discharge. In the later stages of a vulvo-vaginitis there sometimes occurs a pseudo-hematuria due to a growth of very vascular and easily bleeding tissue around the meatus, which generally passes under the name of prolapse of the urethra.

While gonorrheal cystitis is very rare in children, cases are reported by Cahen-Brach, Comby, Reblaud and Wertheim. I have been unable to find a case in which the kidneys were affected, though according to Marx this may occur. The vulvo-vaginal glands have generally been spared in the cases I have seen. In one Skene's glands were affected, and in two there was an abscess of the gland of Bartholin. The inguinal glands are involved so rarely that an adenitis would suggest a general tuberculosis.

I am inclined to think that an infection of the uterine cavity and an ascending endometritis occurs much more frequently than is generally supposed. One might collect quite a number of reported grave cases of pelvic peritonitis and salpingitis. Loren, Sanger, Steven, Welander, Hatfield, Hubert, Comby, Sheffield and Marx all speak of such cases. In the course of autopsies upon children the latter found pus in the tubes five times, and had several cases of clinical salpingitis following a vulvo-vaginitis. I remember a child of four who in the later stages of a vaginitis had much abdominal pain which was undoubtedly due to a mild degree of tubal infection. A recent case has also complained of vague pelvic pains quite distinct from the discomfort of the vulvitis. As exceptional complications may be mentioned two cases of proctitis mentioned by Sheffield.

Leaving the pelvis, some cases of gonorrheal endocarditis and pericarditis and many of arthritis have been reported, some of the latter leading even to suppuration (Wertheim). Ophthalmia by direct transmission is, of course, quite common, especially in very young children. In one epidemic it occurred in nearly half the cases. As most of my cases were older children, in whom a certain amount of restraint could be exercised, I have been fortunate enough to escape seeing any. Purulent otitis may also occur by direct transmission (Rocas).

As regards sequelæ, beyond the effect upon the constitution of a long-continued suppuration, it is at least worth considering whether some of the cases of stricture of the urethra, which, to be sure, is rare in women, for which no other cause can be found, may not possibly be due to an infantile urethritis. Sanger and others have spoken of the possibility of a salpingi-

tis remaining dormant until the awakening of the sexual system at puberty, and have thus found an etiology for some of the otherwise inexplicable cases of pelvic disease in virgins. Marx had three cases of gonorrheal salpingitis in young women, in all of whom there was the history of an infantile leucorrhea, while the possibility of a recent infection apparently could be excluded. Of course, such cases are not beyond suspicion; but even if we do not go as far as to agree with Marx that most cases of infantile gonorrheal endometritis are followed sooner or later by trouble with the appendages, it is certain that many are, and it is at least probable that many of the cases of sterility due to an under-developed uterus can justly be referred to the same primary cause.

I have tried to emphasize the fact, that, while gonorrhea has a much better prognosis in children than in adults, it often does have severe and even dangerous complications, both immediate and remote; and in view of this, the greatest attention should be paid to prophylaxis. If the mother has gonorrhea it should begin at birth, and when nitrate of silver is applied to the child's eyes its external genitals should be subjected to the same treatment. A mother known to have gonorrhea should be warned of the danger a child runs in sleeping with her. A simple catarrhal vulvo-vaginitis is not contagious. Probably many purulent ones are not, but as the microscopical absence of the gonococcus is only negative evidence, it is better to treat all purulent cases as gonorrheal, or at any rate as contagious. If it be impracticable to isolate the child, we should insist that it does not sleep with healthy children, that it has its own wash-basin, towels, sponges, etc., that it should have at least a chamber-vessel set apart for its exclusive use, and that if in an institution it should have if possible a nurse to itself.

The greatest efforts should be made to prevent the possibility of ophthalmia. The child should wear an antiseptic pad, which when soiled should be burned; and if an infant, the clothing should be so arranged that its hands cannot gain direct access to its genitals, while older children should have it impressed upon them to keep their hands away from both their eyes and their genitals. Sheffield, after having a number of cases of ophthalmia occur in the course of an epidemic of vulvo-vaginitis, in spite of frequent prophylactic washings of the eyes with boracic solution, succeeded in stopping further spread of the disease by having all cases of vulvo-vaginitis wear a bandage which did not allow the hands to be moved lower down than the fifth rib, and having the eyes of all such cases covered every night with absorbent cotton and a bandage. The hands should be well washed with soap several times a day to guard against accidents; and as they are most liable to become infected during the night, they should be thoroughly washed in corrosive solution every morning. While these precautions may seem excessive, a few cases of ophthalmia will convince most men of their utility.

TREATMENT.

The catarrhal cases, occurring for the most sickly children, tend to recover spontaneously improvement in the general condition, and typically no local treatment. Purulent cases, on the other hand, are sometimes obstinate to such that in desperation some men have come to

local treatment as worse than useless; for instance, Caben-Brach was confident that his later cases, in which he relied only upon cleanliness and the internal use of balsams, recovered quite as rapidly as those in which he resorted to more energetic measures. Jadasohn says that, with or in spite of treatment, a cure should be expected in about three months. Both these writers admit that many cases last much longer—even for years, sometimes. Far from agreeing with them, I am convinced that treatment not only shortens the attack but also renders complications and sequelæ much less probable.

A host of local remedies have been tried, and most of them with but little success. The dry-packing treatment, sometimes of such value in the treatment of adult gonorrhœas, is not applicable to many children; and perforce we must depend upon injections and suppositories. The injection perhaps most frequently used has been corrosive sublimate in solutions varying in strength from 1-10,000 to 1-500; but dissatisfaction with this has led to the use of many other antiseptics and astringents, such as lysol, creolin, carbolic acid (which is especially objectionable from the danger of poisoning), thallin, zinc sulphate (even to the strength of five per cent. daily (Kiesel), douches of nitrate of silver in weak solution (1-5,000), or injection of a small amount of strong solution (1-50). Painting the vagina with ichthyol or iodine has had its advocates. Pott advised bougies of iodoform; Comby, of salol; Pozzi, the insufflation of iodoform. Marfan uses bougies of alumnol, three per cent. Cassel uses bichloride, 1-1,000, for three weeks, and then applies one to five per cent. nitrate of silver two or three times a week. Martin advises the injection at first of a one-per-cent. solution of sodium bicarbonate twice a day, then of bichloride 1-10,000, to which is added after a few days one part in twenty of extract of hydrastris, or else the injection of nitrate of silver, 1-6,000.

Whatever local treatment be employed the child should be kept in bed during the acute stage. Walking is generally painful; in fact, it is often the waddling gait that first attracts attention to the trouble. Whether the urethra be involved or not, the child should be encouraged to drink freely and be given mild diluents or balsams—say, *ol. santali* five drops t. i. d.—which will at least render the urine less irritating to the inflamed vulva. If greatly so, it may be well to allow the child to urinate in a warm hip-bath. Especially nervous children will sometimes hold their water much longer than is desirable, from dread of pain, and such cases can sometimes be helped greatly with cocaine. The genitals should be kept clean with hot boracic solution, which should be used several times a day, and, if necessary, pain should be calmed by sedative washes like that of lead and opium, or by hot, mildly antiseptic compresses. The bowels will, of course, be kept open, partly on general principles and partly to lessen pelvic congestion; in fact, a laxative will often be quite enough to stop the discharge in some of the catarrhal cases. Injections are to be avoided during the acute stage, except perhaps one of warm salt solution or of sodium bicarbonate, if the discharge be very copious. The introduction of anything between the inflamed labia is painful and strong injections only aggravate the discharge.

The method of local treatment that has been most satisfactory in my hands—a modification of that of

Marx and Rocas, based upon the suggestion of Janet—is the use of graduated solutions of permanganate of potash. I teach the mother myself just how they are to be given. An assistant holds the child, if very small, in her lap, practically in the lithotomy position, and a No. 10 soft-rubber catheter is introduced into the vagina as far as it will go easily. It is very important that soap be used as a lubricant instead of vaseline. An excess of oil effectually prevents a solution of permanganate from coming in contact with the tissues. It is well, however, to protect the anus with vaseline. A pad saturated with five-per-cent. cocaine may be needed for the first few times to help the introduction of the catheter; but children soon learn not to dread it, and even welcome the sedative sensation of the injection. In two recent cases the hymen had already been dilated by the child's fingers sufficiently to allow the use of a much larger catheter. The vagina is thoroughly washed out with fairly hot solution, best given by a fountain syringe only moderately elevated, and the douche is followed by bathing the vulva with hot boracic solution. The injections, of one pint each, are made twice a day. I start with one-half grain to the pint (1-16,000), and increase the strength by one-half grain every third day at first. After about the ninth day, when the strength will be approximately 1-4,000, I begin to increase by one-half grain daily. I have not cared about going higher than 1-500, and generally stop about 1-800. One-half-grain tablets furnish a convenient means for graduating the strength.

If after four weeks some discharge still continues and gonococci are still present, I follow Carrier's suggestion and inject two drachms of two-per-cent. nitrate of silver solution three times a week, alternating with the continued use of fairly strong injections of permanganate. Of course, it is of the greatest importance that local treatment be aided by good food and tonics. Under this treatment a cure has generally been obtained in from six to eight weeks, and I have seen very few complications. I have not been able to abort a case of true gonorrhœa and am sceptical about its being done, as children do not often come under observation until the deeper tissues are invaded.

While this treatment has been fairly satisfactory, I think that further observation will show that an almost ideal germicide for these cases has been found in argonin, the new soluble silver-albumin salt, formed by treating sodium casein with silver nitrate and alcohol, which does not coagulate albumin and is not irritating. I have used it in only one case, the history of which is as follows:

P. P., a well-nourished child of four, was first seen six weeks ago. Eight days previously her mother had noticed that her walk was painful and had found a vulvar discharge, but had thought it of no consequence until it became bloody a week later. The child was still somewhat feverish, and was found to have a mild vulvitis and a severe vaginitis, but no urethritis although urination was very painful. At the first examination of the discharge Dr. Lord was unable to identify any gonococci positively, but a few days later he found them in abundance. The child was given alkaline diluents and injections of argonin, at first of five per cent., and after ten days of ten per cent., which I gave myself every second day, using about an ounce at a time. No blood was seen in the discharge after the first injection, and the condition improved

with greater rapidity, considering the initial severity, than I remember having seen in any other case. In three weeks gonococci had almost disappeared. At the end of a month I changed to nitrate of silver, two per cent., twice a week, and the child is now almost entirely well.

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SOME RESULTS OF THE POSTURAL METHOD OF DRAINING THE PERITONEAL CAVITY AFTER ABDOMINAL OPERATIONS.¹

BY W. L. BURRAGE, M.D.

In the *Bulletin of the Johns Hopkins Hospital* for April, 1897, appeared an article on the postural method of draining the peritoneal cavity after abdominal operations, by J. G. Clark, M.D.

As my paper is an attempt to throw some light on the value of this method of drainage by an analysis of cases treated according to Dr. Clark's directions, it may be as well to begin by abstracting his article. He says:

The general trend of recent medical literature relating to intraperitoneal drainage through the abdominal incision has been towards the limitation or reduction of the number of conditions demanding its employment, and a few European gynecologists have even gone so far as to discard drainage entirely, leaving the peritoneum to protect itself.

The benefits to be derived from any form of drainage when used for the purpose of removing infectious matter from the peritoneal cavity are infinitesimal compared with the untoward or disastrous results which may follow its use.

The greatest safety lies in closing the abdomen without drainage, except in cases of purulent peritonitis or in operations when there has been extensive suturing of the intestines, and in a few other rare conditions. . . .

Escape of pus during an operation, oozing of blood or serum, extensive raw areas in the pelvis, are usually supposed to indicate the necessity of some form of drain; on the contrary, these are the cases which should be left to the care of the peritoneum, as demonstrated by a comparative study in our series of 1,700 cases of abdominal section of a hundred cases each of similar pelvic inflammatory affections, drained and undrained. The undrained cases presented by far the best results.

Every surgeon recognizes the dangers of dead spaces in the abdominal cavity and endeavors to prevent their formation, but frequently this is impossible. Mikuliez first called attention to this subject in a forcible paper, and devised a special drain for the prevention of oozing and

for the removal of fluids from dead spaces; but this method, like all others, is unsatisfactory because the principle upon which it is based is wrong.

The chief objections to drainage of dependent pockets in the pelvis or abdomen through an abdominal opening are, first, fluids are frequently not removed, but on the contrary, are pent up by the gauze drain; and second, instead of removing infection, the gauze or tube may be the means of introducing it from the outside into the de-generated fluids.

To overcome the dangers of dependent pockets and dead spaces in the pelvis, I would suggest the elevation of the patient's body after operation to a sufficient height to start the flow of collecting fluids from the pelvis towards the diaphragm, and thus promote the rapid elimination by the normal channels of exit from the peritoneal cavity of infectious matter and of vital fluids which may stagnate in these pockets and form a culture medium for pyogenic micro-organisms.

As regards the employment of salt solution, Dr. Clark says:

It is a well-known principle in physics that a substance will undergo combustion or solution much more rapidly in a finely divided state than when massed together. The same principle may be applied to the disposal of foreign matter in the peritoneal cavity.

The author then goes on to take up the function of the peritoneum under normal and pathological conditions, and, after reviewing the literature, arrives at the following conclusions:

(1) Under normal conditions the peritoneum can dispose of large numbers of pyogenic organisms without producing peritonitis.

(2) The less absorption from the peritoneal cavity the greater the danger of infection.

(3) Solid sterile particles, such as fecal matter, potato, etc., are partly absorbed, and the remainder are encapsulated without the production of peritonitis.

(4) Death may be produced by general septicemia, and not by peritonitis, where large quantities of organisms are taken up by the lymph streams.

(5) Irritant chemical substances destroy the tissues of the peritoneum and prepare a place for the lodgement of organisms which becomes the starting-point for peritonitis.

(6) Stagnation of fluids in dead spaces favor the production of peritonitis by furnishing a suitable culture medium for the growth of bacteria.

(7) The association of infectious bacteria with blood-clots in the peritoneal cavity is especially liable to produce peritonitis.

(8) Traumatic injury or strangulation of large areas of tissue are strong etiological factors in the production of peritonitis when associated with infectious matter.

Under the heading of "Mechanism of Absorption of Fluids and Solid Particles in the Peritoneal Cavity," Dr. Clark speaks of the recent investigations of Muscatello on the histology of the diaphragmatic peritoneum and the mechanism of absorption. Muscatello found that beneath the peritoneal endothelium of the diaphragm and between the connective-tissue fibres are open spaces four to sixteen millimetres in diameter, occurring in groups of fifty or sixty, which communicate with the lymph vessels. A careful search for these spaces failed to reveal them in any other portion of the peritoneum.

Attention is called to the fact that it had been proved by experiments on animals that the peritoneum was capable of absorbing the most remarkable quantities of fluids in a short space of time (the equivalent of the animal's entire weight in twenty-four hours), and also that Muscatello had demonstrated the existence of an

¹ Read before the Obstetrical and Gynecological Section of the Suffolk District Medical Society, October 27, 1897.

intraperitoneal current which carries fluids and small particles towards the diaphragm, regardless of the posture of the animal experimented on. The rate of transmission of these particles from the peritoneal cavity to their ultimate repository, the lymph glands, could, however, be increased or retarded by the influence of gravity. The leucocytes are largely the bearers of foreign particles from the peritoneal cavity.

As to the "Postural Method of Draining Dead Spaces in the Pelvis," Dr. Clark claims that by it, first, stagnating fluids are prevented from collecting in dead spaces in the pelvis; second, infectious organisms are quickly carried into normal areas of the body where they are destroyed before they can increase in numbers; and third, toxic substances elaborated by the organisms are diluted and prevented from expending their irritant effects on a wounded area. He describes the method as follows:

At the conclusion of an operation all fluids and *débris* should be removed as far as possible by sponges, after which the abdominal cavity should be thoroughly irrigated with normal salt solution until the fluid comes away clear.

When the irrigation fluid is all sponged out, 500 to 1,000 c. c. of salt solution should be poured into the peritoneal cavity, so that when the patient is elevated after she is returned to the ward the artificial current may be started at once towards the diaphragm, thus supplementing the normal current.

After the introduction of the salt solution the omentum and intestines should be replaced in an orderly way and the abdomen closed.

As soon as the patient is returned to her room, the foot of the bed should be elevated about twenty degrees (eighteen inches), which gives sufficient inclination of the posterior pelvic wall to assist the flow towards the general peritoneal cavity. This posture should be maintained for twenty-four to thirty-six hours, after which the bed may be lowered.

Dr. Clark's paper finishes with the report of three cases operated upon at the Johns Hopkins Hospital in which the postural method of drainage was employed. They were a suppurating ovarian cyst in two cases and a double pyosalpinx in the other case, and all were bad cases with extensive adhesions. They all made good recoveries.

In a most exhaustive article, entitled "A Critical Review of Seventeen Hundred Cases of Abdominal Section from the Standpoint of Intraperitoneal Drainage," published in the numbers of the *American Journal of Obstetrics* for April and May, 1897, the same author makes a strong argument against drainage through the abdominal incision. At the risk of being tedious I am going to read you the opening paragraphs of his paper. He writes:

In the following paper I propose to prove, from a review of 1,700 abdominal-section cases from the opening of the gynecological department of the Johns Hopkins Hospital, in 1889, up to October 1, 1896, that not only is drainage valueless in the great majority of cases in which it has hitherto been used, and is still used by some surgeons and gynecologists, but that it is frequently productive of harm.

By clinical observation the conditions supposed to demand drainage have gradually been reduced from a formidable number to a comparatively small one, and I am certain that this number is still too large.

The employment of a drain, as frequently stated by Dr. Kelly, is a confession of imperfect work on the part of the surgeon. That he is unable in some cases to make it better is true, but in many cases a more minute attention to the smaller details of a surgical operation, with a greater

reliance upon the ability of the peritoneum and general system to eliminate infectious matter, will overcome many difficulties which are now incorrectly supposed to be obviated by drainage.

I made use of this method of drainage for the first time at St. Elizabeth's Hospital on May 1st. From May 1st to October 1st the method was used there in 27 cases by the different members of the gynecological staff, and at present it is the accepted method in all serious abdominal operations in the gynecological department at that institution.

For the last two years we had been using drainage through the abdominal incision with less and less frequency. Some of us had left salt solution in the abdominal cavity at the close of the operation and all of us, in cases of shock and the loss of much blood, had elevated the foot of the bed after the operation; but the practical abandonment of external drainage together with the use of saline solution and the elevated decubitus had not been given a thorough trial until this summer.

The 27 cases include all of the severe operations, all those where there was escape of pus into the peritoneal cavity or where there was excessive oozing; in fact, those cases in which drainage through the abdominal incision would formerly have been thought to be necessary. There are included among them, however, a few less severe ones, that were treated with the postural drainage before it was evident that this treatment was of no especial benefit in such cases.

A comparison of drained and undrained cases would seem to be hardly profitable because of the impossibility of selecting two series of cases nearly enough similar, but there is no question in my mind but that the undrained cases do better.

All of the 27 patients in my list recovered, but in this respect there is no difference from the recent previous results at St. Elizabeth's Hospital, for only one case out of 167 abdominal operations in the last eighteen months had been fatal, and that one was a case of Cæsarean section operated upon *in extremis*.

In four cases in which cultures were taken from the pus of tubal abscesses streptococci were found in two and were absent in two. As far as could be determined, those in which the streptococci were found had as smooth a convalescence as those in which the streptococci were absent, notwithstanding the fact that in several the pus unavoidably escaped into the peritoneal cavity.

The evening temperature and pulse records for the four days succeeding the day of operation were tabulated in 26 cases, and an average computed of each evening's temperature and pulse. One case was omitted because the patient developed pneumonia. The following table shows the result:

AVERAGE EVENING TEMPERATURE AND PULSE FOR FOUR DAYS FOLLOWING DAY OF OPERATION. TWENTY-SIX CASES.

	Temp.	Pulse.
First day	100.4°	100
Second day	100.1°	97
Third day	99.4°	92
Fourth day	99.2°	79

Only one temperature reached the 102° mark, and that one was 102.4° on the first night. It declined to 99.8° on the fourth night.

A large increase in the twenty-four-hour amount of urine has been observed after leaving salt solution in the peritoneal cavity. The appended figures show the

number of ounces on the four successive days in two cases in which the salt solution was used and in two cases in which it was not used. In the latter two the foot of the bed was not elevated, but the patients received the customary rectal injection of salt solution and coffee at the close of the operation.

TWENTY-FOUR-HOUR AMOUNT OF URINE, IN OUNCES.

	Salt Sol. Used.		Salt Sol. not Used.	
	Case 1.	Case 2.	Case 1.	Case 2.
First day	63	41	25	17
Second day	38	62	24	18
Third day	40	47	26	31
Fourth day	33	33	30	25

As a scanty secretion of urine following abdominal operations has long been a well-known phenomenon, and as this has been thought to indicate a deficient elimination of waste products, the effect of the salt solution on the amount of urinary secretion must be considered beneficial.

It was my custom in the first cases on which the postural method of drainage was used to keep the foot of the bed elevated for twenty-four hours only; but after noting that several of the patients complained of pain in the flanks and had a more rapid pulse as soon as the bed was lowered, I adopted thirty-six hours as the proper time for the elevation of the bed, and have since found this time generally satisfactory. I am inclined to believe that the discomfort referred to may be in part, at least, avoided by lowering the foot of the bed gradually, that is, after twenty-four hours let it down half-way, and then lower it entirely at the end of thirty-six hours.

The relief of thirst is quite noticeable after the use of salt solution.

With the foot of the bed raised eighteen inches there is a tendency for the patient to slide towards the head of the bed, and some patients complain of the discomfort attending this sliding. In this position of the body there is some difficulty in swallowing, but this difficulty is overcome by the patient's swallowing slowly. On the other hand, vomiting is much easier in this position. The nurses say that there is less nausea when the bed is elevated; and this opinion coincides with my observation, although I have known of two or three patients with whom the nausea seemed to be exaggerated by the position, notably a patient of one of my colleagues, who was violently nauseated on the night of the day following the operation, and the nausea was entirely relieved by lowering the bed.

In one or two fat women with abdominal distention we have noted embarrassment of the respiration. Distention is much less frequent, and this is probably due, in large measure, to the absence of interference with the intestines by the gauze drain.

Very few patients are able to urinate voluntarily during the first twenty-four hours after an abdominal operation, whether the foot of the bed is elevated or not. With the bed elevated the catheter must be used, unless, as is often done at St. Elizabeth's, both for urination and for the expulsion of enemata, the bed is lowered temporarily.

Patients experience no flushing of the face or headache as a result of the lowered head. They have little or no backache, in marked contrast to the amount of pain suffered after most abdominal operations when the bed is flat. There is less abdominal pain where the postural method is used. This immunity from pain I have thought can be attributed to the freedom of the

pelvis from stagnating fluids, for, in the past I have observed that the post-operation abdominal pain was less, the cleaner and freer from oozing the pelvis was left at the close of the operation.

Elevating the foot of the bed has long been considered one of the valuable means of combating surgical shock; the employment of salt solution freely in the rectum and under the breasts has added to our resources; and now if we put hot salt solution in the peritoneal cavity and elevate the bed, we are not only assisting the peritoneum to rid itself of harmful fluids and micro-organisms, but stimulating the vital centres, washing out the kidneys and giving the blood sufficient volume to make good any loss.

On the whole, I think that the results of the postural method of draining the peritoneal cavity following abdominal operations warrant us in saying that the employment of this procedure marks a distinct advance in abdominal surgery.

A CASE OF ASTHENIC BULBAR PARALYSIS.¹

BY JAMES L. WHEATON, JR., M.D. (HARV.), PAWTUCKET, R. I.

THE history of the case up to the time of the first medical attendance and the course and special symptoms since are as follows:

Miss A., thirty-three years old, was a school-teacher by occupation. Her father died of heart disease, and her mother of tuberculosis of the lungs. She had a brother and sister who are both living and well. She had never been strong or rugged, but was always delicate, bordering continually on ill-health, and of a very nervous disposition. Menstruation began at fourteen and had always been very profuse, but quite regular. She had had most of the children's diseases, but had never had other severe disease. She had always been a hard student, and was a constant reader. During the last year, she had worked very hard at her school. She held a position in one of the public schools; and as she took a great interest in her work and was ever ready to do whatever extra work she was asked to do, her superior placed upon her a great amount of work. To accomplish this, she would sit up until one and two o'clock at night and arise early in the morning, and sometimes even going without her meals in order to get a certain amount of work done. By the time school closed in the spring she was tired out and very nervous. She could not sleep and was very excitable. About the second week in July, 1896, she went to the dentist and had a tooth extracted. There was some trouble about it; and for some reason, the dentist told her that she must be very careful or her gum would start to bleed and she might bleed to death. This frightened and worried her greatly, and she became even more excitable and nervous. On the night of the 21st of July she had a severe headache, and in the morning she found she could raise her eyelids with difficulty and that the light pained her eyes very much.

I was called to see her on the 22d of July, 1896. I found her condition as follows: She was of average height, delicately built, not very strong muscularly and with a very slight development of fat. She could move about the room readily and was not confined to her bed. Her face was pale and thin, but with a good intelligent expression. The skin on her

¹ Read before the Rhode Island Medical Society, December 2, 1897.

neck and arms, pale or slightly anemic. There was no eruption, no edema and no scars to be seen. There was a slight moisture. The temperature appeared normal. The pulse was weak, soft and beating 90 per minute. The condition of the arteries was good. Respiration was normal, both in type and frequency. The most striking symptoms were the dropping of the eyelids, the inflamed appearance of the eyes and the general nervous condition of the patient. She complained mostly of her inability to keep her eyelids raised, of the pain which the light caused, and of a dull pain across the top of her head.

On closer examination, the lungs were found to be normal. Inspection, percussion and auscultation showed that the heart was normal. The tongue was protruded quickly and straight, and was not coated. The appetite was fairly good. No great thirst, no vomiting and no diarrhea. Upon palpation and percussion, the liver, spleen and stomach appeared normal, and there was no evidence of new growths or disease in the abdomen. The urine proved to be normal on examination.

In regard to the nervous system: There were no abnormal involuntary movements of the muscles. There was no difference noted on the two sides of the face. The movements and appearance of the lips and nose were normal. The pupils were alike. She could wrinkle her forehead, pucker her lips, laugh, blow out her cheeks and stick out her tongue, moving it from side to side. The movements of her eyes were good. She could, however, raise her eyelids with difficulty. Her mouth and pharynx appeared normal, and she could speak distinctly. She held her head and neck in a good position and without difficulty. There was complete control of the movements of her arms and legs. She had complete control of her bladder and rectum. She could write without difficulty. The sensitiveness of the skin appeared normal to the needle and to warmth and cold. Her muscular sense was good, as well as her senses of hearing, smelling and tasting. Her reflexes were slightly increased.

During the next few days, she grew rapidly worse. It became almost impossible for her to raise her eyelids. She began to have double vision, and she experienced some difficulty in chewing her food, and in keeping her mouth closed. She was unable to sleep. She would occasionally have attacks of palpitation.

August 14th, she complained of difficulty of walking. She appeared on walking to balance her body on her hips, after the same fashion that a juggler balances a feather on his nose.

Up to the 2d of August, she had been able to get down stairs and lie on the lounge during the day. After this date, she remained in bed, being too weak to walk even a few steps. The muscles of her neck gave out, and she could keep her head erect for a short time only.

On August 14th, menstruation began, and all her symptoms increased in severity. This lasted for six days and was quite profuse. She began about this time to have difficulty in swallowing.

On August 31st, she had quite a severe choking spell, apparently some food had found its way into the larynx.

On September 7th, she had a very bad spell of difficulty in breathing. It lasted some fifteen minutes. She had another on the 11th.

On the 14th, I was called to the house in a great hurry. I found she had had another attack of difficulty in breathing, just as she was being raised to take some nourishment, and that while held in this upright position she had suddenly ceased to breathe. Her heart was just fluttering when I arrived. This lasted but a minute or two. She had died from a paralysis of the muscles of respiration.

The foregoing data are a few landmarks of the disease, showing merely an outline of its course. The other important symptoms appeared so gradually that no exact date could be given of their appearance or disappearance; and of these latter I will speak now more at length. First, in regard to her nervous symptoms. Her mind remained clear during the whole course of the disease. She was for the greater part of the time despondent, looking at the worst side of her case. She was very fretful, continually asking something to be done for her and never satisfied when it was done. She slept very little, averaging only two or three hours in the twenty-four. About once every week she would have an attack of severe pain in her head, and usually after the attack her symptoms would increase in severity. Her reflexes increased gradually during the disease. During the latter half, upon striking the patella-tendon, you would get not only a twitch of that leg, but even a greater one of the other leg. The paralysis seemed to begin with her eyelids and then work downwards. It did not, however, at any time appear to be a true paralysis. It seemed rather that the muscles were tired out, and with rest they could perform their functions once more. As evidence of this is the fact that the *continued* paralysis appeared only in those muscles which were obliged to be used constantly, such as the eyelids, the muscles of the eyes, the muscles of mastication and deglutition. There was also the fact that although there appeared no evidence of paralysis in the muscles of the extremities with the ordinary movements, yet when you called upon her to do certain movements for some time, they would be done rightly at first, but would grow gradually weaker, until at last they could not be done at all. This was seen in walking upstairs. She could go up two or three steps all right, but then she would begin to have difficulty, and before reaching the top would give out completely. In walking on the level, she would go half-way across the room all right, then the muscles keeping her body erect would gradually give out, and she would have the balancing appearance, which I spoke of above. Swallowing was also an evidence of this. She could swallow three or four times well, then she gradually lost power, and she would have to rest some time before attempting it again. After two or three hours' rest, all her symptoms would be better. She could open her eyes wide. She could close her mouth, and she could swallow without difficulty. This apparent paralysis would vary in severity from day to day. She would go sometimes one or two days with but little difficulty with any of her muscular functions. Upon my morning call on the day she died, I found her in the best condition since she had taken to her bed. She could open her eyes wide, she could swallow well and breathed without difficulty. During her sickness she did not lose much weight. Her muscles did not atrophy. The muscles of her tongue did not atrophy; there were no furrows or depressions; and the individual fasciculi exhibited no active fibrillary contractions. The lips did not atrophy, neither did

they grow thin and wrinkled. Her temperature at no time went above 101° , and for the greater part was normal. The pulse-rate never exceeded 120 per minute and was generally between 90 and 110. She experienced very little pain, other than in her head. Her appetite remained good all the time. She never had any gastric troubles and her bowels were always regular. No time did she lose control of her bladder or rectum. No eruption appeared on her skin at any time.

After watching the case carefully for some time, the complexity of the symptoms gave me great doubts as to the diagnosis. I asked Dr. Gorton to see the case with me, which he kindly did. After going over the case thoroughly we came to the conclusion that it was a case of asthenic bulbar paralysis. The reasons for this conclusion were as follows:

From the fact that her organs of respiration, circulation and digestion gave no evidence of disease, we are brought directly to the nervous system as the location of her trouble. The ptosis, the disturbance in the functions of speech, of mastication and of deglutition give evidence of trouble in the neighborhood of the bulbar processes, while the continued clearness of the intellect, the lack of characteristic pain, of hemiplegia and other symptoms of cerebral disease lead us to confine our thoughts almost entirely to the different diseases of the structures at the base of the brain.

Acute and apoplectic bulbar paralysis, due either to hemorrhage into the medulla oblongata and the pons or to embolism and thrombosis of the basilar artery, is more sudden in its appearance, and the duration of the disease is either but a few days, or, if it does continue, there exists a crossed hemiplegia. Then, too, acute or inflammatory bulbar paralysis is more sudden in its appearance and but a few days brings it to a fatal termination. Compression of the medulla, by new growths and the like, differ from the case in hand, in that when the medulla is compressed there are initial symptoms of irritation and a greater complexity of clinical phenomena, like sensory lesions and hemiplegia, and an asymmetry of certain symptoms.

Now let us consider progressive bulbar paralysis, which belongs to the group with progressive muscular atrophy, and amyotrophic lateral sclerosis, the last two differing from the first in the location of their lesion rather than in the lesion itself. In progressive bulbar paralysis the symptoms are very slow in development. There are mild premonitory symptoms, such as painful sensations in the back of the neck. Then, too, it is exceedingly rare to find ptosis at first or at any time during the disease. Disturbance in the utterance of the letters in which the tongue plays an essential part is the first thing generally noticeable. The tongue atrophies and becomes flabby and thin, furrows and depressions come upon it, and often the individual fasciculi show active fibrillary contractions. None of these phenomena are seen in our case. At the same time with the change in the tongue, changes are taking place in the muscles about it. The lips become thin and stiff and are unable to be puckered so as to whistle. The muscles of mastication give out, and the jaw drops, which, added to the impairment of movement in the muscles supplied by the lower half of the facial, give to the expression a persistent lachrymose character. Then comes the trouble with the muscles of the pharynx and larynx, and great impairment in swallowing is produced, and the liquid ingesta are re-

gurgitated through the nose, and the production of many sounds as *B* and *P* is impossible. Although we have in our case the difficulty in mastication and deglutition, yet it differs from the condition seen in progressive bulbar paralysis, in that in the latter, when the paralysis comes on, it is persistent, while in our case at any time with a little rest the muscles would do their work well for a short time. This characteristic holds good in all the affected muscles. It is not a true paralysis, as you find in progressive bulbar paralysis, progressive muscular atrophy and amyotrophic lateral sclerosis, but rather a tiring of muscles which rest restores to their normal condition. Then, too, you do not see in our case, as in the other three diseases mentioned above, an atrophy of the muscles. They remained about the same throughout the whole course of the disease. This weariness of the muscles was not confined to the muscles supplied by the basilar nuclei, but existed all over the body. It was a general condition, but was noticeable more in those muscles which kept continually in active service. It was due to this continued use that the paralysis seemed real in the case of the ptosis, the muscles of the eyes and of mastication. Could they have been put at perfect rest, they would have acted like the other muscles. So much for the motor symptoms. The reflexes show a difference. In progressive bulbar paralysis the reflexes are greatly diminished or even absent, while in our case the reflexes are greatly increased. Our patient's pulse never went above 120, while in the other diseases it reaches as high as 160 per minute. Progressive bulbar paralysis lasts several years, from two to five, while the duration in our case was not quite three months.

The diagnosis becomes harder when we consider pseudo-bulbar paralysis or glosso-labio pharyngea. This disease differs from progressive bulbar paralysis and simulates our case in the more sudden mode of onset, in the frequent remissions, and the fact that the muscles do not atrophy; yet it differs from both in its longer duration, its asymmetry of the paralysis, which is especially seen in the orbicularis oris, and in the fact that although there are remissions in the disease, yet they are not of the same character as in the case before us; that is to say, while the attack is on, there is a true paralysis, and no amount of rest will bring it back into condition. In this case, however, the remissions are of very short duration and are brought about by rest. Then, too, no cause for such disease could be found in the condition of the arteries or heart.

If we cannot place our case in any of the preceding groups of disease, where will we place it? We must find a class of cases which have as their characteristics a functional disturbance of the whole muscular system, which disturbance is apparently a tiring of the muscles by use, and which can be restored in some degree by rest, and a disturbance not accompanied by atrophy of the muscles. Up to the present time, only twenty cases of such a nature have been reported. Erb, in May, 1878, reported three cases, but it remained to Oppenheim to put forth the first exact description. Since then, cases have been reported by Eisenlohr, Wilks, Shaw, Goldflam, Senator, Hoppe, Remark, Strümpell, Jolly, Pineles, Mayer, Charcot and Marinresco, and Fajertzajn. In all making twenty cases. Oppenheim, from the fact that it was so like progressive bulbar paralysis, yet upon autopsy no pathological changes could be seen, gave to the class the name of

"bulbarparalyse ohne anatomischen befund." This appellation did not give any suggestion of the characteristic muscular phenomena. Strümpell, to overcome this, called it *asthenische bulbarparalyse*, or *asthenic bulbar paralysis*. In Jolly's investigation into his cases, he found that the cause for the muscular disturbance lay for the most part in the muscles themselves, for unlike normal muscles when stimulated directly by the electrical current, the tonic contractions would last but a short time and the muscles becoming soon tired out, relaxed, even while the current was being applied, showing, as he says, some change in the muscular structure itself. He therefore called it *myasthenia pseudo-paralytica gravis*.

Whatever name may be given, they all have the same important diagnostic points: the ptosis, the disturbance in mastication, deglutition and speech, the peculiar phenomena shown in the muscular functions, the lack of atrophy of the muscles and the comparative short duration of the disease.

Of the cases which have come to autopsy, no pathological changes have been found.

As to what the etiology may be, it is uncertain; probably worry, excitement and overwork, coupled with a nervous temperament, play an important part.

One or two cases started with a bad cold.

Of the twenty-one cases reported, twelve died. Two of the others passed out of observation, but, from their condition, probably died. Only seven recoveries are reported.

The treatment consists of absolute rest, forced nutrition, light massage and electricity applied to the muscles, and general galvanism. Internally, strychnine, arsenic and phosphorus have been used.

No autopsy was allowed in this case; but I feel sure if one had been held, no pathological changes would have been found. From the course and symptoms of the disease, reasoning by analogy, we have a right to call this case one of *asthenic bulbar paralysis*.

Medical Progress.

REPORT ON GENITO-URINARY SURGERY.

BY F. S. WATSON, M.D., BOSTON.

CATHETERISM OF THE URETERS IN THE MALE.

MEYER¹ describes the manner of catheterizing the male ureters; it is an extension to the male of the method used by Dr. Howard Kelly in the female.

The bladder is washed out and cocaineized, and from five to seven ounces of clear fluid are introduced. The ureter cystoscope, containing the ureter catheter, is then passed; after the interior of the bladder is inspected, and the ureteral openings have been seen, the catheter is inserted for a distance of two inches into the ureter.

LITHOLAPAXY.

Richard Baker² publishes 204 cases of litholapaxy performed in India, in addition to the 200 already reported by him in the *Lancet* of October 10, 1896. These 404 cases furnish another example of the remarkable low mortality which attends the operation of Bigelow as it is practised in India by British surgeons

upon native patients, it being in his last series 0.49 per cent. The cases are tabulated and summarized as follows:

Mussulmans	168
Hindooes	36
Males	200
Females	4
Ages under one year	1
One to three years	65
Six to ten years	36
Eleven to fifteen years	4
Sixteen to forty-five years	53
Forty-six to fifty-five years	28
Forty-eight to sixty-five years	13
Over sixty-five years	6
Average duration of operation	12 min. 19 sec.
Average weight of stone	2 drachms, 46 grs.
Average stay in the hospital	little under 2 days

The strikingly successful results of this operation in the hands of surgeons in India are probably to be referred to the enormous number of cases of stone which occur in that country as compared with others, and the greater technical dexterity gained thereby by the operators, and to the peculiar power of the native to withstand surgical operations. The same proportion of success cannot be expected to be reached elsewhere.

URETERO-PYELO-NEOSTOMY.

Bazy³ reports two cases of large hydronephroses, in which, avoiding nephrectomy, he restored the free flow of urine through the ureter, in the first instance by resecting the ureter and implanting its distal end in the pelvis of the kidney. The kidney was reached by median laparotomy. The fluid was withdrawn from it by an aspirator, and its pelvis incised, the orifice of the ureter was found to be compressed by the distended pelvis, far up upon one side of which it took its origin. A catheter was passed into the ureter through the incision in the renal pelvis, and a portion of the ureter was resected; the free end was then slit upon one side slightly in order to make a larger entrance, and was sutured into the most dependent portion of the renal pelvis; the soft catheter was passed into the ureter through the wound in the pelvis, a hole being cut in that portion of the instrument which lay within the pelvis of the kidney in order to drain the latter. The wound of the renal pelvis was then sewed to the abdominal wound, the catheter passing out through the latter. The patient made a good recovery. The urinary fistula closed, and the restored ureter performed its function adequately. The second patient died.

TOTAL EXTIRPATION OF THE BLADDER FOR DIFFUSE CANCER.

Tuffier⁴ gives the case of a man forty years old, who had had symptoms of dysuria, hematuria, and painful micturition for several years. Tuffier performed a suprapubic cystotomy, and found a diffuse cancerous growth occupying almost the whole of the interior of the bladder, but not extending beyond the organ, there was no glandular involvement discoverable. The operator succeeded in freeing the peritoneal investment of the bladder entirely from the organ without opening the peritoneal cavity. The ureters were cut off and implanted one into either side of the rectum, and ureteral catheters attached by a stitch in each ureter were led through the anus. The abdominal wound was closed except at its lower angle,

¹ Journal Cutaneous and Genito-Urinary Diseases, June, 1897.

² Lancet, September 11, 1897, p. 648.

³ Revue de Chirurgie, May 10, 1897.

⁴ Ann. des malad. des Org. Genito-Urinaires, t. xv, p. 130.

through which it was drained. A urinary fistula established itself through this wound a few days after the operation. The patient made, however, an excellent recovery, and was able to resume his work. The date of the last examination of the patient after the operation is not stated.

SARCOMA OF THE KIDNEY IN CHILDREN; A CRITICAL REVIEW OF THE PATHOLOGY, ETC., AS SEEN IN ONE HUNDRED AND FORTY-FIVE CASES.

George Walker, Baltimore, in this instructive contribution, summarizes and analyzes this large number of cases, and makes the following conclusions: Malignant tumors of the kidney in childhood occur most frequently either congenitally or within the first few years of life. That they are all of them probably embryonic in origin is evidenced by the fact that they contain distinctly embryonic tissue. While not being pure sarcoma, they resemble it in their most prominent features. They are rapid in growth, and are not attended with any distinctive systemic symptoms in the first half of their course; in the latter part of it they are accompanied by rapid and great constitutional disturbance.

They occur most frequently between one and two years of age. The left kidney is more often affected than the right. The disease occurs with about equal frequency in males and females. The average duration of life without operation is about 8.08 months; with operation it is 16.77 months.

Operative treatment, to be successful, should be instituted early; but even in the late cases an exploration should be made. The immediate operative mortality is 88.25 per cent.; the ultimate one between 74.82 and 94.58 per cent.; 5.47 per cent. are cured; and the period of living is lengthened by 8.08 months by operation.

RESECTION OF THE KIDNEY.

Bloch⁵ operated upon a boy thirteen years of age who had pain in one kidney and hematuria for two and a half years. The lower end of the kidney was occupied by a circumscribed tumor (which subsequent microscopic examination showed to be malignant). He resected the lower half of the right kidney, suturing the stump. The wound healed promptly and nine months later showed no evidence of recurrence. Bloch reports ten other cases of resection from the literature of the subject, and considers the operation indicated in certain cases of urinary fistula, of trauma, inflammatory processes, and in benign tumors of the kidney which are circumscribed and not too large.

CYSTIC TUMOR OF THE BLADDER, CONTAINING CALCULI, SUCCESSFULLY REMOVED.

P. J. Freyer⁶ describes the case of a man thirty-six years of age who had urinary symptoms for ten years, following a fall upon the loins. The principal symptoms were pain in the region of the right kidney, intermittent hematuria, pyrexia, and cystitis. For several years the bladder could not be emptied naturally. He passed two or three ounces by straining; the rest of the urine could only be passed by lying down or else had to be drawn by a catheter, the cystoscope showed a tumor about the size of a walnut near the base of the bladder.

⁵ Centralblatt für Chirurg., November 6, 1897.

⁶ Lancet, November 13, 1897, p. 1246.

September 30, 1896, the bladder was opened by a suprapubic cystotomy, and a tumor of the size mentioned above was found attached by a thick pedicle near the orifice of the right ureter. The tumor was drawn upward, its pedicle clamped and divided, the stump was cauterized and the pedicle tied by two ligatures. The tumor was cystic, with smooth surface except at one point from which grew a small papilloma; within the cyst were two calculi, one the size of a small walnut, and the other the size of a pea. The patient made an excellent recovery, and twelve months after the operation was in perfect health.

The cyst was single-walled, composed of fibrous tissue, covered both inside and out by transitional epithelium such as is found in the bladder and ureters. It was probably formed by the lodgement of the calculi descending from the kidney in the lower part of the ureter, where it passes through the bladder wall. Under pressure from the urine they bulged the bladder and ureteral walls into the bladder; and subsequently this bulging, becoming narrower above, formed within the bladder the pedunculated tumor found at the time of operation.

RECENT PROGRESS IN OPHTHALMOLOGY.

BY MYLES STANDISH, M.D., AND WILLIAM D. HALL, M.D., BOSTON.

(Concluded from No. 2, p. 36.)

GONORRHEAL ARTHRITIS.

Weiss²² observed a hospital attendant who had always been healthy. Five weeks after an accidental contamination of the conjunctiva with some urethral pus from a patient, which resulted in a violent purulent conjunctivitis, he experienced a severe pain in the right knee-joint and redness of the skin thereabouts. There was pain on movement, but no effusion into the joint, which, however, disappeared after a week to reappear in two weeks in the tibio-tarsal articulation. The patient never had an urethritis. In other cases which have been observed gonococci have been found in the joint effusion and afterwards cultivated.

HOLOCAIN.

Heinz and Schlösser²³ have together studied the muriate of a substance recently described by Täuber, of Berlin, as p-diathoxyathenyldiphenylamidin. It arises from the union of phenacetin and phenetidin, and is closely related to the former; it is a strong base with a melting point of 121°, insoluble in water but soluble in alcohol and ether. The muriate (holocain) is easily crystallizable, and neutral in reaction. It is soluble in hot water, less so in cold, and has a saturation of from one to two per cent. on cooling. A one per cent. solution caused no irritation to the conjunctiva of rabbits, five per cent., slight; whereas the powdered drug caused tears, swelling and redness of the conjunctiva. A 0.2 per cent. solution is the weakest which will produce complete anesthesia by a single instillation in rabbits, and with a one-per-cent. solution complete anesthesia comes on in fifteen seconds and lasts fifteen minutes. The anesthesia is produced by a paralysis of sensitive nerve endings. Upon the eye it has no effect other than the anesthesia. It is without influence upon the pupil,

²² Ueber Arthritis nach Conjunctivitis blennorrhoeica, Klin. Monatsbl., March, 1897.

²³ Holocain, ein neues Anästhetikum, Klin. Monatsbl. f. Augenheilk., April, 1897.

the mechanism of accommodation or the calibre of the vessels. It causes contraction of striped muscle, with subsequent loss of response to electrical stimulation; and to the lower organisms it acts as a protoplasmic poison. It energetically inhibits the growth of bacteria, and a 0.1 per cent. solution will delay fermentation and putrefaction, while a one per cent. solution is a powerful antiseptic. The cloudy appearance noticed during sterilization is due to precipitation of a small portion of the base by the slight amount of alkali set free from the containing vessel of glass during the boiling. This loss is infinitesimal and can be avoided by use of porcelain.

Holocain is a powerful convulsive poison analogous to strychnia. An injection of .002 g. will cause increased reflex irritability in the frog, but no spasms; and in the cold-blooded animals there is also noticed a curara-like effect upon the motor-nerve endings, which is likewise noticed after large doses of strychnia. In the warm-blooded animals only the spasmodic appearances are at hand. The toxic dose for a medium rabbit is .01 g., and in five minutes there are convulsions with trismus, which soon become general. There is then a period of comparative quiet, followed by other convulsions.

The lowest anesthetic dose for rabbits is holocain 0.2 per cent., cocain 0.2 per cent., and eucain 0.5 per cent.; while the lowest toxic dose for rabbits of 1,500 g. is holocain .01 g., cocain .05 g., and eucain .075 g. A complete anesthesia can usually be produced by a 0.5 per cent. solution but a one per cent. solution is to be recommended. The effect is complete at the end of one minute and is at first accompanied by a sensation of smarting, which, however, soon ceases. There is also a slight redness of the conjunctiva of the bulb, which quickly disappears. The full effect of the drug lasts about ten minutes, and gradually passes off. Introduction of the one per cent. solution into the anterior chamber quickly rendered the iris and ciliary body anesthetic and was not followed by unpleasant after-effects. The effect on the surface of the cornea was not so noticeable as in the case of cocain; it only acts upon the nerve endings and not on the vessels, therefore does not affect the vitality of the cornea as does cocain. That it does not affect the pupil, accommodation or tension is an advantage. It is in itself an antiseptic.

RÖNTGEN RAYS IN OPHTHALMIC SURGERY.

At the meeting of the American Medical Association, June, 1897, in speaking of cases of his own, Dr. Hansell said that his method was to bandage a photographic plate to the side of the head and to arrange the Röntgen tube in front and to the nasal side of the eye at an angle of 45° and at about fourteen inches distance. Dr. Sweet described an apparatus consisting of two metallic points, to be placed in front of the eye at a known distance and at a known distance from each other, and a plate-holder to be fastened to the side of the head. The Crookes tube is placed in the horizontal line with the point which is opposite the centre of the cornea to the nasal side and thirteen inches from the eye. A second picture is taken with the tube placed at a point below the metal indicators. From these two pictures the exact location of the foreign body can be calculated. The bony wall of the orbit does not offer much resistance to the rays; the small focus tube is to be used; minute bits of metal

can be indicated; ordinary landscape plates are sufficient; exposure is four minutes.²⁴

HEMORRHAGES IN THE FUNDUS IN THE YOUNG.

Abadie²⁵ has noticed that the hemorrhages which frequently occur in the eyes of infants and young adults are often preceded by epistaxis and that an examination of the blood shows a diminution of the red blood-corpuscles. In this connection he does not consider those dependent upon Bright's or diabetes. He advises sulphuric lemonade, iron and ergotin, but has not succeeded well with quinia and the iodides. Those hemorrhages that are sometimes noticed in adults who show no other morbid symptoms are benefited by subcutaneous injections of mercurials.

RETINAL GLIOMA.

Greeff²⁶ believes that, because transverse sections of gliomata show a ring of well-colored cells around each vessel, which disappear when the growth breaks through the sclera, this peculiarity should be no reason for separating such tumors of the retina from similar tumors of the brain. The difference between the cells surrounding the vessels and those in other parts of the tumor is due to intra-ocular pressure preventing sufficient nutrition to certain neoplastic elements causing retrograde metamorphosis in those portions away from the vessels. The discovery of "spider cells" in the optic nerve and retina suggested that search be made for them in glioma. A Golgi-Cajal preparation of retinal glioma presents cells quite characteristically arranged. In addition to star-shaped cells with numerous and fine ramifications (true neuroglia cells), which compose the greater part of the neoplasm, there are branching cells which by their form resemble the large cells of the ganglionic layer of the retina. These latter are three kinds: (1) large cells, six or eight times as large as the "spider cells," with long dichotomous branches and identical with the ganglionic cells of the retina; (2) smaller cells, round or polyhedral and distinguished from their analogues in the ganglionic layer as much by their ramifications as by their complicated form; (3) the smallest and most curious of all, which, on section, are found to possess numerous long filaments, which, at a certain place, have an enlargement resembling a cell with bright staining nucleus. These structures are distinguished from the radiating fibres of the retina by their complicated structure, being larger and having lateral ramifications. They resemble, on the contrary, the embryonic cells of the retina discovered by Cajal. In addition to these there are small nucleated cells without protoplasmic prolongations and identical to the neuroblasts of His. The normal retina contains the "spider cells" only in the nerve fibre and ganglionic layers; so probably glioma takes its origin in one of these layers, although, as has been well established by Cajal and others, cells peculiar to one layer may be found in another, as it is possible it may take its origin in any of the layers.

TOXIC IRITIS.

Hilbert,²⁷ after mentioning experiences of others with cases of iritis due to various causes, such as inju-

²⁴ Ophthalmic Record, July, 1897.

²⁵ Les hemorrhages du fond de l'oeil chez les jeunes sujets et les adultes, Soc. d'Ophthal. de Paris, April, 1897.

²⁶ Etude sur le gliome de la retine, Deutsch. med. Woch., 1896.

²⁷ Zur Kenntnis der Iritis toxica, Centralbl. f. prakt. Augenheilk., February, 1897.

ditions use of irritating ointments and collyria, the direct effect of micro-organisms or their derivatives, caterpillars, hair, etc., describes one of his own, in which a woman came to him on account of a severe inflammation of the eye which came on two days previously, after having applied the juice of the *tithymalus cyparissias scop.*, one of the *euphobiaceæ*, to the upper lid in order to remove a wart. The reaction was quite severe, going on to hypopiou, with deposits upon the membrane of Descemet and capsule of the lens; but the final result was satisfactory. From it is prepared *ol. lathyridis*, used as a drastic and for the expulsion of tapeworm.

SUPRARENAL EXTRACT.

Koenigstein²⁸ in a communication before the Medical Club of Vienna, regarding his experiments with an extract of the suprarenal capsules, said that he had noticed an elevation of the blood pressure. An anemia follows its application to the conjunctiva; while between twenty and thirty minutes after the instillation of a ten-per-cent. solution into the cul-de-sac the palpebral opening became smaller and the conjunctiva paler. The sensibility of the cornea remains, but after repeated use the pupil dilates, without, however, modifying its reflex activity. In all inflammatory affections of the eye an anemia followed its use, but the action is superficial being limited to the conjunctival vessels. It leaves the retina unaffected, does not penetrate to the anterior chamber, and acts by causing the smaller vessels to contract.

New Instruments.

A NEW HEAD-SUPPORT FOR CRIES OF THE SPINE.

BY ERNEST BOYEN YOUNG, M.D., BOSTON.

IN the treatment of spinal caries where the disease is between the mid-cervical region and the fifth dorsal vertebra, the position and support of the head is important; while in the upper cervical region fixation must be added to the two requisites already mentioned.

With almost every form of apparatus used for this purpose the weight of the head is borne at two points, the chin and occiput. The natural tendency of the head is to fall forward; and hence the greater amount of pressure comes upon the chin unless the head is thrown backward to an unsightly and uncomfortable degree. As a consequence of this and the thinness of the tissues over the jaw, sores are apt to result even in the most carefully fitted apparatus.

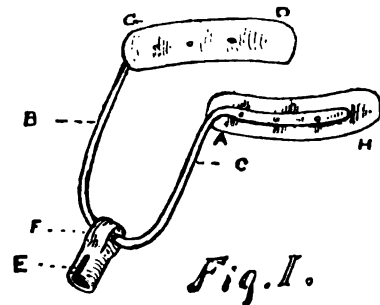
The principal objection is, however, deficiency of fixation; for if applied in such a manner as to fully carry out their intended purpose, the child is unable to open the mouth and the apparatus must be loosened during meals.

The tissues at the back of the neck and directly under the occiput are thick and not especially sensitive. It was with the idea of receiving the weight of the head on a cushion at this point, leaving the chin entirely free, that the writer devised this head-support, which is designed to be used with the Taylor brace.

The head-rest, as will be seen from the illustrations,

consists of a padded U-piece which supports the weight of the head and is attached to the collar-post at a point directly under the occiput. Passing forward from the ends of the U-piece above the ears are two pads which fit closely to the sides of the head. A leather strap across the forehead attached to the ends of the pads holds the head firmly upon the U-piece. The pads prevent lateral motion; while the U-piece behind renders impossible the downward motion of the occiput which always accompanies all backward movements of the head. Forward motion is, of course, prevented by the strap across the forehead.

As is shown in Fig. 1, F is a brass or iron socket, prevented from twisting from side to side by a pin in the back of the collar-post, which slips into a slot at E. Through the upper part of this socket a U-shaped piece of steel wire, one-fourth of an inch in diameter, passes upward behind the ears, and at a level with the middle of the forehead makes a sudden bend and runs forward over the ears to a point about one inch behind



the external edge of the orbit. The portions between A and H and G and D are flattened from side to side and curved to fit the head. Pieces of sole leather, one and a fourth inches wide, are attached to their inner sides extending slightly beyond the buckles for the forehead strap at H and D, and also slightly beyond the bends at G and A.

From C to B the wire is padded with saddler's felt to any desired thickness and covered with leather. This padding should exactly fit the curve of the head.

It will sometimes be found of advantage to give the bottom of the U a curve with the concavity forward; as in heads without a prominent occiput this gives a firmer support. Care must always be taken that the support does not impinge upon the back of the mastoids or excoriations will result.

The forehead-strap is made of some pliable leather, and should be about one inch in width.

The best method of measuring for this apparatus is with some fairly pliable wire which can be accurately fitted and then removed without losing its shape; the machinist making the U-piece enough deeper to allow for padding to the exact shape and size of the pattern.

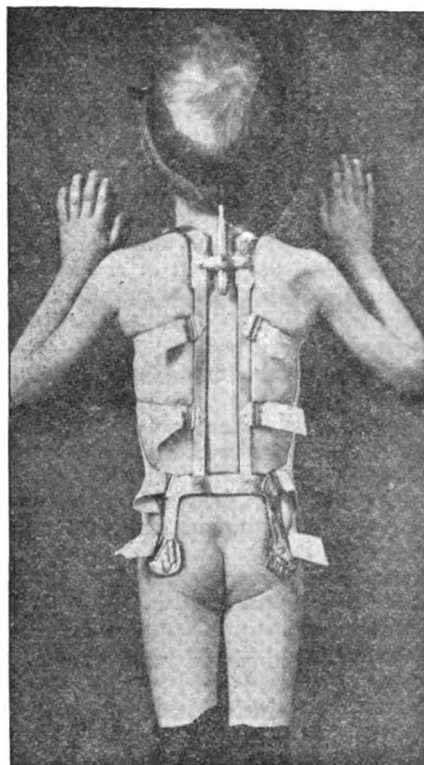
If accurately fitted, it will be found necessary in applying the support to first slip the forward ends of the side pieces onto the head and then swing the U-piece downward under the occiput before attaching to the brace. The head is then pulled back over the cushion, which acts as the fulcrum, and the strap adjusted to hold it in place. The upward thrust thus applied is regulated by raising or lowering the collar-post.

It is very important that the U-piece fits closely to the back of the neck, as is shown in Fig. 2, so that the pressure falls upon the muscles at the back of the skull; otherwise it is apt to cause occipital neuralgia.

²⁸ *Emploi de l'extrait surrénal en ophtalmologie*, Ann. d'Oc., July.

This head-support is not well adapted to children with large parietal bosses. It is also unsuitable for

of any case of spinal caries where it becomes necessary to control the head. For such cases it offers very



cases where there is a lack of intelligent care, and hence is unfit for the average out-patient case. With the exceptions stated above and some which may arise from personal idiosyncrasies, there seems to be no contra-indication to its employment for the treatment

satisfactory fixation, the comfort of freedom of motion of the jaw and simplicity and cheapness of construction.

The following cases are published through the courtesy of the staff of the Children's Hospital and the staff of the House of the Good Samaritan.

Case.	Age.	Sex.	Age of disease.	Seat of disease.	Deformity.	Torticollis?	Previous treatment.	Time of treatment with present apparatus.	Subsequent history.
1. E. T. R.	5 yrs.	M.	16 months.	4 and 5 dorsal.	Slight.	None.	Plaster jacket and chin support.	One and one-half years.	Doing well at present time. Has worn apparatus constantly since first applied.
2. K. M. M.	3½ yrs.	M.	6 months.	Cervico-dorsal.	Slight.	None.	Partial paralysis. Frame for 3 months.	One and one-half years.	Child in good condition at present time. Has worn apparatus constantly since first applied. Ambulatory treatment for 6 hours daily.
3. H. C. G.	7½ yrs.	F.	Unknown. Some mos.	Cervico-dorsal.	Slight.	Present.	Brace with Thomas collar tried without success.	One year.	Did well in hospital; but poor care outside made change of support seem best.
4. G. W.	2 yrs.	F.	Unknown.	High cervical.	Slight.	Present; not reduced by bed treatment.	Bed with head extension.	Four months.	Did not do well. Subsequent treatment not fully carried out.
5. K. S.	6 yrs.	M.	4 months.	Cervical.	Slight.	Present.	Deep cervical abscess. Recumbency for six weeks.	One year.	In excellent condition. Has worn apparatus constantly.
6. J. N.	10 yrs.	F.	4 years.	4-8 dorsal.	Much.	None.	Treated with plaster jacket and jury mast 2 yrs. Brace 1 year. No apparatus 1 year; paralysis at entrance. Bed treatment in hospital two and one-half months.	Six months.	Doing well when last reported, about six months after application of apparatus. Able to walk.
7. McF.	6 yrs.	F.	1½ years.	High dorsal.	Considerable.	None.	Brace and head support 1 year. Deformity increasing.	Five months.	In excellent condition. Has worn apparatus constantly.
8. M. A. H.	6 yrs.	M.	7 months.	3 and 4 dorsal.	Considerable.	None.	None.	Fourteen months.	In excellent condition. Has worn apparatus constantly.

Reports of Societies.

SUFFOLK DISTRICT MEDICAL SOCIETY. THE SECTION FOR OBSTETRICS AND DISEASES OF WOMEN.

C. H. HARE, M.D., SECRETARY.

REGULAR Meeting, Wednesday, October 27, 1897,
DR. F. W. JOHNSON in the chair.

PATHOLOGICAL SPECIMENS.

DR. EDGAR GARCEAU showed a tuberculous kidney. The symptoms before removal were those of cystitis. The only sign was enlargement of the kidney of the affected side. Catheterization of the right ureter was possible, but not of the left, owing to a stricture. The right kidney secreted normal urine.

DR. JOHNSON: I have three specimens I would like to show:

One is a cyst of the vulvo-vaginal gland. The contents look very much like jelly. The cyst was dissected out without rupturing it, and is about the size those cysts usually are. They are not very common. I have known of only four or five. I think I have seen three.

This specimen is primary cancer of the ovary. The woman was three months pregnant when the operation was done. She aborted at the fifth month, and since then has been suffering a good deal of pain in the abdomen, with diarrhea and considerable emaciation. At the time of the operation the omentum was adherent to the ovary, and there were a number of cancerous nodules in the omentum, and one nodule in the parietal peritoneum in front of the bladder. The uterus, as far as we could see, was not involved at that time. This is the ovary from the other side, which was also diseased, the disease just beginning in it. This other is a very interesting specimen of its kind.

The next specimen is one of carcinoma of the uterus, where the cauliflower growth filled the vault of the vagina. That was removed by scissors, cautery and curette, and then, after thoroughly using the cautery, the vagina was disinfected and suprapubic hysterectomy done. After getting the uterus out, it was found to contain an ovum, and the specimen is a very pretty one on that account. The ovum can be seen, also the allantois and the beginning formation of the placenta. It is at the fundus of the uterus. She had been flowing several weeks before coming into the hospital, but pregnancy was suspected by Dr. Storer, whose patient she was. You can see the ovum very distinctly; of course, the alcohol has shrivelled it up some, and the allantois. The disease had got outside the cervix, involving the posterior vaginal wall, and had reached as far as the peritoneum posteriorly.

DR. M. STORER read a paper on

VULVO-VAGINITIS IN CHILDREN.¹

DR. E. W. CUSHING: I think we have to thank Dr. Storer for this very valuable presentation of a very important subject. It is hard enough for women to suffer the serious consequences of gonorrhea, even when one may say it is their own fault; it is harder yet for innocent women to be infected; but to think of little children being infected is something cruel. I am persuaded Dr. Storer is right when he lays the blame of later suffering to occurrences in infantile life.

¹ See page 49 of the Journal.

I can recall a number of cases where young women have suffered from pelvic trouble, and have said they have always suffered so far back as they can remember, the condition becoming so serious as to finally require an operation; and on operation the remains of old salpingitis have been found on one or both sides, adhesions and tying down of uterus and tubes, causing retroflexion of the uterus. In these cases it has been plain that something has occurred in childhood to give rise to these conditions. Lawson Tait, I think it was, who first brought forward the theory that various exanthemata, such as measles and scarlet fever, as well as mumps, were liable to be complicated with salpingitis and adhesions of this kind. From what we know of the insidious spread of gonorrhea, I think it perhaps more probable that many of these cases can really be referred to a gonorrheal inflammation in childhood which has escaped proper observation. I do not suggest anything but praise for the valuable suggestions as to treatment. The alkaline solutions have been claimed recently by Fournier to be a specific for gonorrhea, and simple injections with bicarbonate of soda are in themselves very soothing and very healing. I am a trifle sceptical myself as to the effect of any local treatment. I have tried many things for gonorrhea, and I have seen cases where nothing seemed to do good while I know that many cases recover without any treatment. I think it depends more on the condition and constitution of the patients than on anything else. The light or red-haired, lymphatic patients are apt to do badly. The subject is one, I think, where a good beginning has been made; and it would be extremely interesting to keep records of some of those cases which have had gonorrheal symptoms when little, and see how they turn out when they grow up, and I presume that can be done as our knowledge increases.

DR. C. P. PUTNAM: The studies recently made on the causes of this affection by the writer and others are very interesting. But practically I have not found my cases so very difficult to cure. I have never been able to trace any case as leading to disease in adult life, though such a thing seems quite possible. Children thus affected generally get well reasonably fast if they are thoroughly treated with alkaline washes, especially borax, provided the patient's general condition is looked after too. This is certainly of the greatest importance. Local treatment may fail without general treatment. Whether such cases lead to a gonorrhea in older years is an interesting question, but I am not able to testify either on one side or the other; certainly it cannot be very common.

DR. BURRAGE: I have seen several cases of deformity of the genitals in young adults that could be explained only on the ground that the patients had had vulvitis in early childhood. I remember one in particular I saw about a year ago, where the nymphæ were practically obliterated and the clitoris was buried deeply under a curtain of tissue that was formed by the adhesion of the remains of the nymphæ, and there was entire absence of the hymen. The patient also had a prolapsed and inflamed ovary. I could not get any definite history of vulvitis in that case. I have seen two or three other cases of similar character. I think this ought to be taken into account as a possible sequelæ of the vulvo-vaginitis of little children.

DR. J. L. MORSE: I find I have fairly careful notes of 21 cases of vulvo-vaginitis in little girls between the ages of one and twelve, most of them be-

tween four and six. Bacteriological examinations were made in all, and the gonococcus found in 16. I have usually found it very hard to get at the source of infection. In these cases I found that the father was responsible in one case, the mother in one, the aunt in one, and an older sister in two, and apparently in all as a result of the child sleeping with the infected person. In another case I found a source of indirect infection through towels from some male boarders, who when accused of being the source of infection immediately left the house; in one of the five cases in which the gonococcus was not found, pin-worms were present, and seemed to be the cause of the irritation. Rachford has recently called attention to a new factor in the etiology of the simple form, considering the uric-acid diathesis to be a frequent cause of temporary and recurrent attacks of mild vaginitis.

As to the symptoms of vulvo-vaginitis in little girls, my experience has certainly not taught me to expect them to be as severe as Dr. Storer would lead us to believe. I have found it, as a rule, a very mild affection, which with a little cleanliness takes care of itself. The symptoms have been a moderate vaginal discharge and a slight vulvar irritation, the children usually being brought because the mother had noticed the discharge on the linen. The question of painful or frequent micturition was investigated in all the cases. Micturition was painful in nine and frequent in nine, not necessarily, however, in the same cases. In one case only did the infection seem to travel up the urinary passages and involve the bladder. In this case there was a mild cystitis which yielded very promptly to therapeutic measures.

The constitutional symptoms in my cases have, as a rule, been very slight. I have not made the careful vaginal examination which specialists would make; but in separating the vulva and investigating the vagina as well as I could, it seemed to me that the vagina was, as a rule, not inflamed. Pus could not be squeezed out of the vagina, and on wiping off the external genitals and introducing a cotton stick into the vagina it rarely showed any discharge.

As to the prognoses, I have found them to yield pretty easily to treatment. The only treatment necessary in many cases has been simple cleanliness. In cases that have not yielded very readily to treatment I have used the soft catheter introduced into the vagina with a solution of myrrh or 1 to 5,000 or 1 to 10,000 corrosive; and in one or two obstinate cases I have used a one-per-cent. solution of nitrate of silver.

I do not feel competent to speak regarding the end results of this affection in little girls because I do not see such cases late in life, but as far as I can tell from seeing them as children it does not seem to me probable that gonorrhea can be the source of much trouble in after life except in rare instances.

DR. C. G. CUMSTON: I have some little experience with vulvo-vaginitis in little girls. In 1895 I published a clinical lecture on the treatment of gonorrhea in the female, and I believe the subject that was taken as the text for the lecture was a case of vulvo-vaginitis in a child, and I described at that time pretty thoroughly the method I used, namely, that of permanganate of potassium irrigations. The only objection that I see to Dr. Storer's treatment is that he uses the solution much too strong. From experience in the treatment of gonorrhea in both adults and children, I have come to the conclusion that permanga-

nate of potassium 1 to 2,000 is as strong as you want to make it. Now if the permanganate treatment after daily injection of about three litres — I think that is better than a stronger solution and smaller quantity, and two or three litres of a tepid solution is a proper amount to give — and if at the end of twelve to fourteen days the gonococcus is still found in the discharge I usually follow the advice given by the immortal Ricord many years ago: when patients do not get well by injections or internal medication let them alone, and, as a rule, if you stop then, you find the discharge diminishes itself without treatment. And, then, balsams given internally have in my hands been very satisfactory.

Regarding complications of vulvo-vaginitis in children, I have had one interesting case occur the last year. A child aged ten had had a discharge from the vulva thirteen days when I saw her. I found the hymen intact. The discharge was very abundant, greenish-yellow, and contained a large number of gonococci. She was treated at the clinic daily with irrigations of permanganate, and the discharge became better, and she ceased to attend after ten days. She came back in a few days, and the mother said the discharge had been very slight, but the day previous the child had been feverish. I found the temperature 39.5° C., pain in the right knee, which was swollen and tender. The next day the joint increased in size, and I ordered four leeches, and after they dropped off to paint the joint with 20 per cent. ichthyol ointment. Three days later the left ankle became involved, and three leeches and ichthyol ointment again cut short the attack. I did not put the joints in splints for the reason that on one occasion, a few years ago, a young woman under my care had gonorrheal arthritis of the elbow, and I put her in splints and she had anchylosis, necessitating resection of the elbow-joint. I used massage and electricity, and the child did well. In three weeks she was up and about. I made blood-counts on the five days following rise of temperature, and there was leucocytosis for four days until the temperature began to fall. In this case the infection was traced to an older sister with whom the child slept.

Regarding the gonococcus in vulvo-vaginitis in little girls, I think it involves a serious question, namely, the medico-legal aspect of the case. In consulting a large number of authorities, among whom I may mention Steinschneider, Martin, De Amicis, Vibert, Koplik, Epstein, Cséri, Isreal, and those already mentioned by Dr. Storer, it would seem to me we should make a distinction between the gonorrheal and catarrhal forms of the disease; and from the reported cases the rule can be formulated that in the vast majority of cases there is no question of criminal assault, but it is an infection from some member of the family or use of contaminated toilet articles in the house where the child is. The catarrhal vaginitis, I agree with the essayist, is due to lymphatic constitution, scrofulosis; and those cases get well with general treatment rather than by local. The catarrhal types, for that matter, are clinically different in their symptoms and evolution from the vulvo-vaginitis produced by Neisser's organism.

I have never found argonin of any particular value excepting as a vesical irrigation in a four-per-cent. solution in gonorrheal and other inflammatory conditions of the bladder.

DR. STORER: In regard to what Dr. Cumston said

relative to the strength of solutions, I have felt that I had been using rather too strong solutions, and in the future I shall follow his advice. As regards treatment, I feel, as has been said by Dr. Morse and Dr. Putnam, that most of these cases will get well without energetic treatment; but I do think by treatment sequelæ which have been shown to occur quite often run a far better chance of being avoided. A number of mothers have promised to bring their children to me in ten or fifteen years to let me see whether sequelæ have occurred; but whether they will do so or not I don't know.

DR. W. L. BURRAGE read a paper entitled

SOME RESULTS OF THE POSTURAL METHOD OF DRAINING THE PERITONEAL CAVITY AFTER ABDOMINAL OPERATIONS.²

DR. KINGMAN: I am very sorry I did not know until this afternoon that this paper was to come up. I have had no opportunity to look up the cases in which I have used this treatment, and so have to speak simply from generalities. I read this article of Dr. Clark's when it came out, and it appealed to me favorably, but was unable to make use of the treatment until I returned from my vacation. I then asked Dr. Burrage if he had used the method and what his results had been. His answer was highly favorable, and since that time I have had occasion to use it in a number of cases, the results coinciding with those stated by him to-night. I have been particularly struck with the absence of pain. The patients seem to be vastly more comfortable, in my experience, when thus treated, entirely aside from the pain caused by the gauze drainage. I have had a predilection for drainage in cases where it seemed to me there was liable to be much oozing or where there had been extravasation of pus into the abdominal cavity and I always used it with the feeling that it increased the patient's chances of recovery, although adding vastly to the discomfort which she must experience. Now I regard as a boon the possibility of treating these cases with a perfectly satisfactory and sufficient drainage without the subsequent annoyance of a weak abdominal scar and the presence of gauze or tube to be removed.

One case I had a few days ago will serve to illustrate the value of this method. It was a case of apparently double extra-uterine pregnancy, which had been treated, through mistaken diagnosis, for three weeks as a case of indigestion. There had probably been repeated extravasations of blood, and yet she tried to perform her household duties, and a week before operation she did a washing. At the time of operation she was in bad condition, temperature 102.5° and pulse 130, and the patient's whole appearance was such as to warn the attendants that she was in great danger. She was cyanotic, had been fed upon morphine for several weeks previously, and was entirely unmanageable. After the operation about a pint and a half of saline solution was put into the peritoneal cavity, the abdomen sewed up, and she was put into the inclined position, the foot of the bed being raised 18 inches. The second night after operation she got out of bed, went to another bed and made herself as comfortable as possible there. The temperature the night after the operation was 103°, the next night 102.5°, the next morning coming down to 99°, and she was feeling quite comfortable. I can hardly believe from my experience of such cases in the

past, where extensive violence was done in the pelvis and where there were decomposing blood-clots, that such a case without drainage could have made the satisfactory recovery that this woman showed, and I feel that the case goes far toward showing the value of this treatment.

DR. STORER: I find notes of nine cases in which I have left the abdomen full of saline solution, but three of them were clean cases, in which no temperature was to be expected, and there was none. In six that had a possible focus of infection (four pyosalpinx and one extra-uterine), as most of them were before Dr. Clark's paper was published, I had no idea of establishing drainage particularly, and left the abdomen full of water merely to make up for a loss of blood and counteract probable shock, and did not elevate the foot of the bed unless shock was present. The fact that the temperatures averaged nearly a degree higher than in those Dr. Burrage has reported would seem to point to the value of elevation of the bed. But in spite of this I have a certain reluctance to believe that such extreme elevation is quite necessary. The position is not comfortable, as one can easily prove by trying it on one's self. I have thought absorption, once started, quite as rapid with the bed elevated only a foot as when eighteen inches, and those six inches make a vast difference to the patient.

DR. E. W. CUSHING: I hardly know what to say on this subject. I hate always to seem to be the doubting Thomas, but you will bear with me if I appear as the *advocatus diaboli*. In 1890 I read a paper before the International Medical Congress at Berlin, to show the advantages of drainage, and I found that, with their improvement in the technique and in the conditions of the operating-rooms in surgery, the Germans had been able to give up drainage. I was surprised to find that pus-tubes could be removed and treated without drainage. I remember J. Veit had a case of that kind where pus entered the peritoneal cavity, and said, "We will disgust Cushing by using no tube," and closed the wound without drainage, the patient recovering perfectly well. I then noticed how careful the surgeons were to leave no oozing, tying with catgut, and then cutting adhesions which we were used to separating with the fingers. That salt solution or plain water can be left in many cases in the abdominal cavity with advantage I found out long ago, and Price has repeatedly emphasized this fact. That raising the foot of the bed a foot or eighteen inches will cause fluids to run out of the pelvis I don't believe. Any one who wants to try that can do it on the cadaver, or try it with a patient in the Trendelenburg position. The spine has such a crook in it at the pelvis that the pelvis does not empty itself, therefore the question arises whether this postural method really amounts to anything, or whether the fact is simply that we are all improving our surgery and can do better work and get along without drainage in cases where we should have drained before. I am using drainage a great deal less than I used to, because I have more faith in the peritoneum and am doing better work. Drainage also is a very variable factor. The proper use of drainage is a fine art that cannot be always used, because the surgeons or the nurses are not thoroughly trained in the care of the glass tube; and if we use the Mikulicz packing or other gauze drainage I am confident that in itself will not drain unless the drainage-tube is carried down through the middle of it.

² See page 52 of the Journal.

Iodoform gauze, in particular, will not drain the pelvic cavity, as the iodoform and soap stop up the pores of the gauze. I am in favor of using drainage as little as possible, and in a case of pus-tube, I don't think drainage is necessary merely, because pus has been free in the abdominal cavity. I also believe in leaving some salt solution in the abdominal cavity in cases where there has been hemorrhage. I am open to conviction on the subject whether the elevation of the pelvis makes any difference or not. It may. It also may be that the improved results are due simply to better surgery and greater cleanliness, without any regard to the posture. We have to take these little openings in the diaphragm on trust, as it were, even if it seems strange the peritoneal cavity should drain from the diaphragm instead of the bottom of the pelvis. In the experiment on which this treatment is based the dogs were hung up by the heels, which, of course, would start all fluids towards the diaphragm. The question is, whether raising the foot of the bed eighteen inches will have any real effect; and this can only be determined by comparing many series of cases. The paper read to-night is therefore a laudable contribution to the study of a question which cannot be considered as settled as yet. I think the posture is not the principal part in this, but it is the good surgery, careful work and perhaps the leaving the salt solution in the abdominal cavity.

DR. JOHNSON: Since Dr. Clark's paper I have used no drainage in any case and I have had a number of cases of pus-tubes, abscesses of the ovaries where rupture took place and the intestines were daubed with pus. In a large number of the cases the pus was sterile; in two cases streptococci were found; all were closed up tight. A pint of normal salt solution was put in the abdominal cavity and the bed raised eighteen inches. Every case got along beautifully. I have yet to see the case where I should use drainage. Perhaps one may come up. This specimen is a senile uterus, very small indeed, with a fibroid growing from it. The fibroid grew backwards and to the left into the left broad ligament. The patient was sixty, suffering from constant backache, an invalid nervously and physically, and almost insane. The left broad ligament was torn to pieces in getting the tumor out. The tumor was also adherent to the rectum. In that case I thought I should put in drainage because I feared I could not stop the bleeding sufficiently. I put in salt solution and closed the abdomen, and the result has been perfectly satisfactory. You can see that the fibroid is covered with adhesions, which all give an idea of the amount of tearing done in the left broad ligament and the consequent raw surfaces and oozing. Although there was considerable oozing, no trouble resulted from it. As to the position being uncomfortable, I have had only one or two cases where discomfort was complained of. Usually no complaint is made; and whenever the catheter is passed or the patient feels uncomfortable, the bed is lowered, the patient turned on the side, the back bathed, and then the bed again raised. Dr. Clark distinctly says the tipping up of the bed is not to drain the pelvic cavity. You tip the bed up, and thus start the current toward the diaphragm. If I had not read Dr. Clark's paper and believed thoroughly in the experiments they have been making at the Johns Hopkins Hospital I should have used drainage in a number of cases operated on since last spring.

DR. BURRAGE: In reply to Dr. Cushing I should like to say I do not think it is intended to drain the pelvis by lifting the foot of the bed, but simply to start the current which is supposed to move in the direction of the diaphragm, and by lifting the foot of the bed it must help the current to move in that direction or toward what we think is the source of removal of the sepsis. I think, as regards drainage in general it is a great deal safer, if we can, to trust to the peritoneum rather than to nurses. There is a great deal of risk in putting in drainage except under the most favorable conditions, where the nurses have been trained in your especial methods, and even then, under the stress of circumstances they are likely to be careless. Therefore, it seems to me, the peritoneum may be more safely trusted, if it is in a fairly normal condition, to absorb the deleterious substances that threaten it. Dr. Clark does not go to the extent of giving up drainage entirely. He uses external drainage in general peritonitis, for here the absorptive powers of the peritoneum have been much lessened, also in cases of suture of the intestine where there is doubt of the line of apposition, and in appendicitis. I think that practically covers the exceptions he makes.

DR. CUSHING: There are two questions involved, one not using drainage, the other whether her posture helps the matter any. That posture will start the current towards the diaphragm is absolutely theoretical. This question is one which is still open and subject to investigation. I do not mean to say it cannot be so, but simply that those who have drained will sometimes be surprised to see, if careful in their work, how well cases will do without drainage, even without this posture.

DR. BURRAGE: This matter of intraperitoneal currents has been investigated by German observers and they have demonstrated the existence of the currents and have found that particles of carmine introduced into the abdominal cavity of a dog appeared more quickly in the lymph spaces of the diaphragm when the animal's hind quarters were raised than when the animal was kept in a horizontal position, tending to show that elevation of the pelvis affects the rapidity of absorption of foreign bodies in the peritoneal cavity.

Recent Literature.

Atlas and Essentials of Bacteriology. By PROF. K. B. LEHMANN, Chief of the Hygienic Institute in Würzburg, and DR. RUDOLF NEUMANN, Assistant in the Hygienic Institute in Würzburg. With 63 chromo-lithographic plates, comprising 558 figures, and numerous engravings. New York: Wm. Wood & Co. 1897.

The most prominent and important portion of this work is the Atlas of Chromo-lithographic Plates. These are designed to show the morphology and cultural peculiarities of sixty-three species of bacteria and other micro-organisms. For the most part the figures are very satisfactory and represent fairly accurately the natural appearances.

The book will be of especial utility to teachers and laboratory students of elementary bacteriology.

An objectionable feature is the use of more or less new or unusual terms to designate certain bacteria. This serves no useful purpose and may cause confusion in the minds of students.

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 THURSDAY, JANUARY 20, 1898.

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MEDICAL REGISTRATION IN MASSACHUSETTS.

THE report of the Board of Registration in Medicine for the year 1897 is in the hands of the printer, and will soon make its appearance at the State House as Public Document No. 56.

The report states that during the year 452 persons filed applications for registration, that 415 of the number have been examined, 323 registered, and 92, failing to pass an examination satisfactory to the Board, were refused registration. The number of persons not subject to examination registered during the period extending from the organization of the Board in July, 1894, to the first of the following January, is 3,776, and during the same period 618 were refused registration. Of the number registered 3,442 were graduates from medical schools authorized to confer the degree of "doctor of medicine," and 334 were non-graduates who had practised three years in the State prior to the passage of the law. Since January 1, 1895, when the Board began its function as an examining and licensing board, 1,444 applicants have been examined, 1,296 registered and 148 rejected.

After discussing at considerable length the medical situation in this State and the requirements for registration as compared with the requirements in other States, particularly in New York, New Jersey and Ohio, the Board submits its recommendations to the legislature in the form of an amendatory act, as follows:

SECTION 1. The examinations for registration as physicians or surgeons under the provisions of Chapter 458 of the Acts of the year 1894, shall be, in whole or in part, in writing in the English language, and shall be of a scientific and practical character, and sufficiently thorough to test the applicant's fitness to practise medicine. They shall embrace the general subjects of surgery, physiology, pathology, obstetrics and gynecology, practice of medicine, anatomy and such other subjects as the Board may determine.

SECT. 2. Authority to practise medicine in this Commonwealth under said Act, or the several later Acts relating thereto, shall be a certificate issued by the Board of Registration in Medicine, and it shall be unlawful for any person to practise medi-

cine in any of its branches within the limits of this Commonwealth, who has not exhibited and registered in the city or town clerk's office of the city or town in which he resides or maintains an office, his authority for practising medicine, together with his age, address and place of birth; and the person so registering shall subscribe and verify, by oath before such clerk, an affidavit containing such facts, which, if false, shall subject the affiant to conviction and punishment for perjury.

SECT. 3. Nothing in this Act shall be so construed as to discriminate against any particular school or system of medicine, or to prohibit service in a case of emergency, or the domestic administration of family remedies; and this Act shall not apply to a commissioned medical officer of the United States Army, Navy or Marine-Hospital Service, in the discharge of his official duty; nor to a physician or surgeon from another State, who is a legal practitioner authorized by a State Examining Board to practise medicine in the State in which he resides, when in actual consultation with a legal practitioner of this Commonwealth; nor to a physician or surgeon residing in another State and practising medicine therein by authority of a certificate or license received after having passed a satisfactory examination in the several branches of medicine as required by a State Examining Board in the State in which he resides, whose general practice extends into the border towns of this Commonwealth, provided such physician does not open an office nor designate a place in such towns where he may meet patients or receive calls; nor to a physician duly authorized to practise medicine in another State called as the family physician to attend a person temporarily abiding in this Commonwealth.

SECT. 4. Any person who, not being then lawfully authorized to practise medicine within this Commonwealth, and so registered according to the law, shall hold himself out to the public as a practitioner of medicine, whether by appending to his name the title of Dr. or M.D., or any other title or designation implying a practitioner of medicine, or attempting to practise medicine in any of its branches, within the limits of this Commonwealth, shall be deemed guilty of a misdemeanor, and shall be punished by a fine of not less than \$100 nor more than \$500 for each offence, or by imprisonment in jail for three months, or both; and in no case where any provision of this law has been violated, shall the person so violating be entitled to receive compensation for services rendered.

SECT. 5. Any person shall be regarded as practising medicine within the meaning of this Act who shall append to his name the letters M.D., or shall assume or advertise the title of Dr. or physician, or any other title which shall show or tend to show that the person assuming or advertising the same is a practitioner of medicine, or of any of the branches of medicine, or who shall investigate or diagnose, or offer to investigate or diagnose, any physical or mental ailment or defect of any person with a view of affording relief, as commonly done by a physician or surgeon, or who shall prescribe for or treat a person for the purpose of curing any real or supposed disease, whether by the use of drugs or by the application of any other agency or alleged method of cure or alleviation or prevention of disease, or to operate as a surgeon for the cure or relief of any wound, fracture or bodily injury or deformity, after having received therefor or with the intent of receiving therefor, either directly or indirectly, any bonus, gift or compensation.

SECT. 6. After the beginning of the year 1900 no person on whom the degree of M.D. or its equivalent, has not been conferred by a medical school considered reputable by the Board of Registration in Medicine, shall be entitled to an examination.

The recommendations are based mainly on educational lines, and define more clearly than is done in the original Act, what under the law shall constitute a misdemeanor. In the present law the number of subjects on which the Board can examine applicants, is limited to five. In the recommendations, anatomy and gynecology, "and such other subjects as the Board may determine," are added to the list. It is also recommended that after the year 1900 no one shall be eligible to an examination on whom some reputable college has not conferred the degree of "doctor of medicine." Section 2 of the proposed Act requires the licensed practitioner to exhibit his certificate of

registration and to record the same in the clerk's office in the city or town in which he practises, a reasonable requirement as a means of identification. The only new feature in Section 3 is the provision relating to practitioners in adjoining States whose practice extends across State lines. Section 4 defines more clearly than the old law the penalties of violation, and adds that no one who is not registered shall be entitled to receive pay for professional services. Section 5 states explicitly who shall be regarded as practising medicine within the meaning of the law. This the present law does not do in a manner considered by the courts to be sufficiently definite. The terms of the proposed section are nearly identical with similar provisions in the Acts in many of the other States, and is not aimed at any particular class of irregular practitioners. It applies to all alike who pretend in any public manner to practise medicine.

We cannot see that the proposed Act is likely to excite the opposition of any one who is not in sympathy with incompetent would-be practitioners. On the contrary, the purpose of the bill must be regarded as salutary and drawn with due care to existing rights. Its passage would greatly enhance the importance and effectiveness of the existing law, and therefore should meet the approval of the legislature.

REPORT OF THE SURGEON-GENERAL OF THE ARMY.

ACCORDING to this report, which has been recently issued for the year ending June 30, 1897, the health of the army during the calendar year 1896 was excellent, the admissions to sick report being practically the same as 1895, for which year the rate of sickness was the lowest on record.

The death-rate from all causes was 5.44 per thousand, much lower than the average annual death-rate for the previous ten years, which was 7.51 per thousand. The number of deaths was 148; 44 resulting from injury, and 108 from disease. The largest number of deaths from a single disease was 17 from typhoid fever. Heart disease came next with 18 deaths. There were 14 deaths from gunshot injuries.

In the past few years there has been great improvement in the sanitary condition of the colored troops, as shown by lessened rates of sickness, disability and death. The white troops have participated in this improvement, though these rates have not fallen so rapidly as those of the colored men.

Forty-seven cases of diphtheria were reported during the year, and 148 cases of typhoid fever, the larger number, 15, occurring at Fort Brady, Mich. This epidemic occurred in August, and was attributed by the medical officer to foul surface-water drunk on the return from a target-practice camp to the post.

No cases of cerebro-spinal meningitis occurred during 1896, but in April, 1897, one case was reported by Lieutenant E. L. Munson, Assistant Surgeon, at Fort Assiniboine, Montana, together with, several

other cases seen by him at that time among civilians in the neighboring country.

The Widal serum test was applied at the bacteriological laboratory of the Army Medical Museum at Washington, D. C., on 71 specimens of blood sent from various posts for that purpose. In 27 cases of well-defined typhoid fever, positive results were obtained in twenty-five. In 19 cases of well-defined diseases, not fevers, negative results were obtained. There remained 25 febrile cases in which the test was made. In 19 of these, in which the symptoms of typhoid fever were not characteristic, and which were classed as the so-called Florida fever or Texas fever, a positive result was obtained, and the writer of the report regards it as extremely probable that they were in reality cases of typhoid infection.

There were 2,087 cases of malarial infection, or 83.08 per thousand. The white troops suffered much more from this cause than the colored, the rate for the former being 89.16 per thousand, and for the latter 16.63.

During the year the Medical Department of the army reported 542 surgical operations, 142 of which were necessitated by injury and 400 by disease. Thirty operations for radical cure of hernia were performed during the year, making 79 for the last two years, and the histories of the cases followed as far as possible to date, gave only three recurrences.

The report on the sanitary condition of the army shows that the quarters of the men are in the main satisfactory. The new quarters at posts recently built are stated to be excellent from a sanitary point of view. At some of the old posts the buildings are said to be more or less out of repair, overcrowded, with inadequate ventilation and primitive methods for the removal of wastes. Nevertheless, it is pleasing to note that there is a steady improvement in hygienic conditions all along the line. The water-supply at a few of the posts is reported as unsatisfactory; but in the majority of instances it is good. It is pointed out that there is a well-marked coincidence between the prevalence of fever and the amount of field service performed by the troops forming a garrison. Post surgeons, in referring to the causation of low fevers in their commands, have frequently taken occasion to explain that these did not originate in insanitary conditions at the post, but were incurred by the men when absent on field service. As a remedy for this state of affairs the use of portable filters for troops when in the field has been suggested. The question of employing means to insure a purer milk-supply is raised at two of the posts, and, as these are located in country districts, such a proposition cannot be regarded as unnecessary. The experiment as to whether the five days' rations when spread over a period of ten days would be sufficient to keep men in proper health, was put to a practical test in April of last year when a ten days' march was made by troop E, First Cavalry, on emergency rations for five days. The result of this experiment went to show that although there was

loss of weight on an average of 2.935 pounds per man, yet that all the forty-six men who composed the troop were at the termination of the march in fine physical condition.

The report on bathing facilities states that a great deal has been done to improve the facilities of the men for bathing. With regard to Fort Duchesne, Utah, we cannot fail to agree with Lieutenant Flagg, Assistant Surgeon, who writes: "Bathing facilities at this post are unsatisfactory; ordinary wash-tubs are used, a hip-bath tub and a foot-tub for one troop, and one half-barrel for the other. In one troop the water is heated by means of a heating stove and copper boiler and a caldron stove. In the other, the water is heated in three oil-cans on a heating stove. The system is not conducive to cleanliness."

The report closes with a large number of statistical tables, which will be of interest to students of military sanitation.

THE "PRACTITIONER" AND THE MEDICAL PROFESSION IN THE UNITED STATES.

In a recent editorial, entitled "The Social Position of the British Medical Profession," the *Journal of the American Medical Association* makes the statement that "the *Practitioner* has lately congratulated the British medical profession on the limited extent to which it suffered contamination from American medical science at the late (Montreal) meeting of the British Medical Association," and goes on at length to charge the British medical profession with flunkysim, etc., and to detract from the value of the meeting itself. Such statements as the following will serve to indicate the general tone of the article:

"The meeting in question was an excellent exhibit of how far philistinism has sunk British medicine beneath the level of American and Continental (European) medical science. The section work in the main would not disgrace a third-rate American medical society of the mutual admiration type."

"The contamination the *Practitioner* fears from the American medical profession is the infusion of self-respect which might destroy the flunkysim exhibited in the controversy over doorbell ringing and handshaking just quoted."

The statements in this very ungenerous, unfriendly and unsuitable diatribe are apparently based on the following sentence in the *Practitioner's* (October) editorial comparing the Montreal meeting with the International Congress at Moscow: "While the meeting of the British Medical Association at Montreal was being arranged there was some fear that the Britishers would be swamped by an invasion of Yankees. Care was taken to prevent this; but still one gathers from our American friends that the success of the meeting was mainly due to their presence in considerable force. However this may be, there can be no doubt that at Moscow the native and every other foreign element was swamped by the Germans, etc."

How little the editor of the *Practitioner* considered the presence of Americans as a contamination may be gathered from another sentence in the same article: "The presence in such large amount of an altogether new element in the shape of Canadians, British and French, and of 'United Statesians'—to use the convenient designation that has lately been suggested for the citizens of the great Republic of the West—gave the meeting the zest of a strange and delightful experience to those accustomed to see, year after year at these annual meetings, the same faces and to hear the same voices," etc. Of Dr. Osler, the editor says: "He proved that the race of scholarly physicians, whose extinction he deplored, has left at least one descendant worthy to stand by the side of any of them." The accomplished editor of the *Practitioner*, Mr. Malcolm Morris, is the last Englishman to be taken to task for depreciating the value of American medical science, of the contributions of which to medical and surgical progress he has always shown the liveliest appreciation.

In his leading editorial in the *Practitioner* of January, 1898, he says: "Many of the leading men in the several departments of medicine have promised to contribute original articles, and the editor also hopes to publish papers by American writers whose names are household words throughout the medical world." He also publishes an appreciative article on the "History of Medicine in America," based on Dr. Roswell Park's "Epitome of the History of Medicine"; and under the heading, "Heroes of Medicine," gives an excellent account of the life and work of James Marion Sims, "to whom," he justly says, "the surgical treatment of the diseases of women owes much of the progress which it has made during the last half-century."

The editor of the *Journal of the American Medical Association* would have done well to have chosen some other text for his attack on his professional brethren across the Atlantic, and singled out some other object than the editor of the *Practitioner*, if, which is to be doubted, such an attack were to profit any one.

A journal which assumes as the official organ of the American Medical Association to voice the feeling of the American medical profession might, it would seem, find more worthy subjects for comment, and treat them with more dignity.

MEDICAL NOTES.

PNEUMONIA TRANSMITTED BY PARROTS.—According to the Paris correspondent of the *British Medical Journal*, seventy cases of psittacosis (pneumonia transmitted by parrots) have occurred in that city and its environs since 1892.

THE PASSING OF THE FAMILY DOCTOR.—The London *Lancet* has lately expressed its regret at the signs of the waning prestige and influence of the medical profession. That looks as if the embarrassments that beset physicians in New York were operating in

London also. There seems to be some reason to anticipate a time when New York families will contract with a syndicate of physicians, comprising a complete set of the necessary specialists, for the supervision of the family health at a fixed annual price. — *Harper's Weekly*.

A NEW EDITOR FOR THE "COLUMBUS MEDICAL JOURNAL." — Dr. R. Harvey Reed has tendered his resignation as president, editor and manager of the Columbus Medical Publishing Company, and Dr. J. E. Brown has been elected editor and manager.

SHE TOOK TOO MANY PILLS. — An aged woman recently died from a too free use of pills composed of belladonna, strychnia and aloin, which she took, without medical advice, for the relief of indigestion. The pills were manufactured by a reliable firm of wholesale druggists.

DEATH AT THE AGE OF ONE HUNDRED AND EIGHTEEN YEARS. — The death is reported near State Road, Del., of Stephen Smith, colored, at the advanced age of one hundred and eighteen years. He is said to have been the father of 46 children by 11 wives, and to have had 108 grandchildren and 65 great-grandchildren.

EPITHELIOMA IN A BOY OF FOURTEEN. — At a recent meeting of the Philadelphia Pathological Society, Dr. M. B. Hartzell reported a case of epithelioma in a boy aged fourteen years. The growth was on the face of the boy and had existed for two years. A portion was excised and the diagnosis confirmed by microscopic examination. The treatment, which consisted of forty per cent. pyrogallol and subsequently boracic acid, resulted in cicatrization of the ulcer. The extreme rarity of the affection in one so young was dwelt upon. — *Philadelphia Medical Journal*.

ARTIFICIAL OYSTERS. — The municipal authorities of Paris are just now engaged in the suppression of an altogether novel form of food adulteration, which is assuming phenomenal proportions, according to the *New York Tribune*. Real oysters are expensive in Paris; and so, with the object of suiting slender purses, artificial oysters on the half-shell have been invented, which are sold at twenty cents a dozen, and they are so cleverly made, and look so nice and fresh, that, once lemon juice or vinegar has been added, they cannot be distinguished from the real article, especially when white wine is taken in connection therewith. The only genuine thing about these oysters is the shell, the manufacturers buying second-hand shells at a small cost, and fastening the spurious oyster in place with a tasteless paste. The municipal laboratory has not yet proclaimed the ingredients of which these bogus oysters are composed, but has announced that they are of a harmful character.

BOSTON AND NEW ENGLAND.

ACUTE INFECTIOUS DISEASES IN BOSTON. — For the two weeks ending at noon, January 19, 1898, there were reported to the Board of Health, of Boston, the

following numbers of cases of acute infectious disease: diphtheria 108, scarlatina 26, scarlet fever 23, typhoid fever 11, measles 27.

THE BOSTON CHILDREN'S HOSPITAL. — At the annual meeting of the corporation of the Children's Hospital of Boston on January 11th the report of the treasurer showed that the expense during 1897 had exceeded the income by nearly \$12,000. The following-named officers were elected: President, Charles L. Young; Vice-President, F. W. Hunnewell; Treasurer, Joshua M. Sears; Secretary, Francis H. Brown; Managers, William Ingalls, Charles H. Fiske, E. V. R. Thayer, H. H. Hunnewell, G. P. Gardner, Frederic C. Shattuck, Oliver Ames, Clarence J. Blake, Gordon Abbott, Howard Stockton, W. B. Thomas, Henry Wheeler.

COMPULSORY REGISTRATION REFUSED. — Judge Holmes, in the Massachusetts Supreme Court, recently dismissed the petition brought by Michael Nolan, of Haverhill, asking for a writ of mandamus to compel the Board of Registration in Medicine to give him a certificate of registration. Nolan applied to the Board on December 10, 1894, setting forth in his application that he was a graduate of Vermont Medical College, at Rutland, in 1889, and that he had practised four years in Haverhill. In his petition to the court he claimed that he was a graduate of a legally chartered college having power to confer degrees in medicine, and therefore wrongly denied registration. The Board in its reply to the declarations of the petitioner asserted that the college named was a fraudulent institution, and under the laws of Vermont was not authorized to confer medical degrees; the judge ruled accordingly.

MAINE ACADEMY OF MEDICINE. — The regular monthly meeting of the Maine Academy of Medicine was held on January 10th at the Maine Eye and Ear Infirmary building in Portland. There was a large attendance. Dr. Wedgewood, of Lewiston, the president of the Academy, presided. A number of new fellows were elected. Dr. H. S. T. Harris, Assistant Surgeon, U. S. A., stationed at Fort Washakie, Wyoming, was elected a Corresponding Fellow of the Academy. The paper of the evening was by Dr. G. W. Merrill on "Digestive Agents." Dr. Daniel Driscoll, of Portland, spoke on the natural process of digestion. Dr. Merrill's paper was also discussed by Mr. E. S. Everett, of Portland, Dr. F. L. Dixon, of Lewiston, Dr. S. C. Gordon, of Portland, Dr. J. F. Thompson, of Portland, Dr. S. P. Warren, Dr. Small, of Lewiston, Dr. Meserve, of Portland, and Dr. Elwell of the Togus National Home. The meeting was followed by a banquet.

QUINCY HOSPITAL. — The corporation of the Quincy City Hospital held its annual meeting at the residence of Dr. John A. Gordon, in Quincy, January 17th, and elected its board of trustees. The endowment fund now amounts to \$35,655, of which \$30,564 is invested in mortgages and real estate. The debt is \$8,231, a decrease over the preceding year.

NEW YORK.

DEATH OF DR. ROBB. — Dr. William H. Robb, the most eminent physician of Montgomery County, New York, died at Selma, Ala., where he had gone for his health, on January 12th, at the age of fifty-four. He had for many years practised at Amsterdam, where he was universally esteemed as one of its foremost citizens. Dr. Robb always took a prominent part in the meetings of the New York State Medical Association. From the time of its organization he was deeply interested in the welfare of the Association, and in November, 1884, he was elected one of its Vice-presidents, and the first President of the Second or Eastern Branch, composed of the counties of Albany, Columbia, Fulton, Greene, Montgomery, Rensselaer, Saratoga, Schenectady and Schoharie.

Miscellany.

A WRITTEN EXAMINATION IN PHYSIOLOGY.

A CORRESPONDENT sends to the *New York Sun* the following answers made by pupils about twelve years of age upon a written examination in physiology and hygiene, and vouches for their genuineness.

"The bones hold up the body and we could not walk without them."

"The stomach is a pear shaped bag furnished with skin."

"If it wasn't for the bones we would be like a caterpillar and couldn't walk."

"The stomach is a pear shaped bag. It holds the head, trunk and limbs and the head is a round ball on top the stomach. It holds the brain and the trunk, the chest and abdomen."

"The puls is the beating of an artery in the wrist, and we need the puls because then the Doctors can tell whether we are in poor health or bad health."

"Tobacco makes the hart beat eragler and weakens the hart."

"The liver can be felt below the ribes and it makes the bile."

"The pulse is a little thing in the wrist and it tells when a person is not healthy."

"The capilars are a net work of long capilars and they gragly be and unite with the veins."

"When we run and play and jump is called exercise. We need it to make the blood flow faster and brisker."

"The most important articles of diet are clothing, pure food, fresh air, exercise and potatoes."

"Gymnastic is an exercise. You do that with dumb poles."

Correspondence.

PEDICULOSIS IN BOSTON'S PUBLIC SCHOOLS.

BOSTON, January 17, 1897.

MR. EDITOR: — The prevalence of pediculosis among the school-children of Boston and the efforts which are now being made to remedy this unpleasant state of affairs are exciting much discussion among parents and others concerned. It occurred to the writer that a statement of some facts brought out in connection with his duties as a medical inspector of schools would be of interest to the medical profession.

As is generally known, there has been for some years a system of medical inspection of public schools. Each school is visited daily by a physician appointed by the Board of Health, and to him are referred for examination any children who appear to the teachers to be sick or in need of advice. In the course of his duties there has come before the inspector in a haphazard way a sufficient number of cases of pediculosis to justify the suspicion that this disease was very prevalent and that nothing but systematic examination and treatment would be of any avail. It was, therefore, decided by the health authorities, in conference with the superintendent of schools, that a systematic examination of all primary and grammar school children should be made by the inspector of schools, with the exception of any children whose parents might object.

To each child that was found to be infected there was given to take home a printed notice of his condition with a prescription and directions for treatment which had been suggested by experts on this subject. The card reads as follows:

School.
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Boston, has been reported

by the Medical Inspector of Schools to be suffering from the presence of lice in the hair, and I am therefore obliged to request that the child be kept out of school for a few days until the disease is cured.

MASTER.

The following method of treatment for killing lice and nits is suggested by the Board of Health:

Wet the hair thoroughly for three hours with crude petroleum, of which half a pint may be obtained at a drug store. (See accompanying prescription.) Then wash the whole head with warm water and soap. Repeat this process on three successive days. The nits may then be removed by combing the hair very carefully with a fine-toothed comb wet with vinegar. Repeat the combing for several days until no more nits can be found. To make the treatment easier and more thorough, the hair may be cut short if there is no objection.

All the children in a family are likely to be affected, and should also be treated as above.

Brushes and combs should be cleansed by putting them in boiling water for a few minutes.

On a separate slip of paper is a prescription for eight ounces of crude petroleum, to be obtained at a drug store. This is usually retailed for ten cents. It is not injurious to the scalp, even when eczema is present and will destroy the life of nits as well as of pediculi.

The examinations were made, as far as possible, and the cards given out just before the Christmas vacation, thus giving the children nearly two weeks in which to clean up. The method of examination employed by me was to have the children file past me in turn without delay while I was seated by a window affording a good light. A movable blackboard, used as a screen, secured a considerable degree of privacy. The diagnosis of pediculosis was based simply on the presence of ova or "nits" in the hair as it is difficult or impossible to find the lice in all cases. The nits prove that there have been lice, and that there will be others unless preventive treatment is used. A teacher with a list of the children's names sat beside the examiner to keep the record. The children were classified in four groups. In the first no ova or pediculi were found; in the second there was a small number of ova, two or three to a dozen being readily found; the third group showed a considerable number of ova; the fourth group showed a very large number of ova and frequently of lice.

At the beginning of the next term all children, except those of the first group, were re-examined to note the result of treatment. Those children who still showed the presence of nits were, therefore, excluded from school; those under group two for two or three days, and those in groups three and four for a week. The exclusion of these children from the schools was done on the authority of the masters, who are directed in their printed instructions to exclude "uncleanly" children. On account of the large number of children who were found on the second examination not to be free from nits, and who would, therefore, continue to be excluded from school, it was decided by the masters, in view of the great difficulty which intelligent

appearing mothers claimed to have in removing nits, that, for the present, all children would be admitted to school without re-examination on presenting a written statement signed by a parent to the effect that petroleum had been applied to the hair as directed on the cards.

As will be seen, the above plans require an enormous amount of work on the part of the medical inspectors, some of whom, like myself, have five schools, including some 3,000 children, under their jurisdiction. This work is cheerfully performed by the inspectors, in spite of the very small pecuniary compensation, in view of its great educational and hygienic value to the children themselves and to the community as a whole. I wish to testify to the great assistance received from Mr. Meserve, master of the Bowdoin School and from his teachers, through their willing co-operation and hearty approval. Some of the teachers had been themselves infected from their pupils as many as four times.

To give an exact idea of the prevalence of pediculosis, I present the result of my examination at the Bowdoin Grammar School on Myrtle Street, within two blocks of the State House. The ages of the children are from six to sixteen years. The great majority of these children come from respectable families, although there is a considerable element of the poorer class represented. They were all girls, except some fifty boys in the primary grade. The number of children examined in this school was 756, with the following result:

200 (26 per cent.) had no nits.
234 (31 per cent.) had a few nits.
269 (35.5 per cent.) had a considerable number of nits.
53 (7 per cent.) had a very large number of nits.

A dozen or more of these children showed considerable eczema of the face or scalp and enlarged cervical glands resulting from this pedicular condition. These children all received their cards before the Christmas vacation. Some two weeks later a re-examination of 509 of them showed the astonishing and discouraging result of only 26 children free from nits. About a quarter of the whole number stated that no treatment whatever had been given them by their parents. The 483 who still had nits were at once sent home, with the result that the parents began treatment in dead earnest. There was undoubtedly considerable mortification felt by the parents and children on receiving these printed notices and on being excluded from school. Calm reflection, however, convinced most of them that the work was done in their own interest. Those who were found to have only a few ova were told that there was no blame attached to them, and that under the old régime their compulsory association with a few children in each room who were in a filthy condition made frequent infection a certainty; but it was hoped that such danger would be averted hereafter. A few parents were unreasonable and refused to be pacified. In some 30 or 40 families the mothers declared that the inspector had made a mistake. In all these cases but one the inspector showed the parents or children the nits which they had failed to find. In the solitary exception the child was not brought to the inspector until two weeks after the time at which he had declared that a few nits were present. In several cases children desired to return to school on the strength of a certificate signed by a physician to the effect that no nits or lice were present. These cases were referred to the inspector, who found that in each case ova were present. One woman, to make her case sure, sent her child back to school with certificates from four physicians, some of whom were connected with our best hospitals and dispensaries, and some with the poorest. Happening to be in the building when the child arrived with these documents, I found she still had nits, and, with her consent, took her to the Boston Dispensary, where Dr. Post and Dr. Hastings certified in writing that the child had nits. This illustrates the danger of giving certificates on the part of those who are careless or not sufficiently experienced. It is to be hoped that the medical profession will help rather than hinder this attempt to purify the schools from their plague of pediculosis.

Among the amusing cases referred from parents was

the following: A small boy whose head was found free from pediculi reported to his parents that the doctor had examined his head and found "nothing in it." The fond mother, understanding that her hopeful offspring had been declared an idiot, rushed to the master and protested against such treatment. The diagnosis was therefore transferred from the child to the mother.

Pediculosis was found to be more prevalent among the children whose parents were of foreign birth, and many of whom could not speak English. Nearly all the worst cases were among these. The remarkable fact appeared that the best record for freedom from pediculosis was held by the colored children, most of whom were very poor and lived in the vicinity of Philips Street. The explanation seemed to be that these children almost invariably have oil, vaseline, or some pomade applied freely to the hair to make it lie smooth and stay parted, and these substances proved disagreeable to the would-be guests. The colored children whose hair was dry had the usual proportion of pediculi.

A word more in regard to the ages at which pediculosis was most common. Of kindergarten children, whose mothers take entire care of their hair, less than half had pediculi. Of the primary children, ranging in age from six to twelve years, who are largely left to take care of their own hair, but who do not do it carefully, five-sixths had pediculi. Of the large girls, from twelve to sixteen years of age, nearly three-fourths had pediculi.

EDWARD M. GREENE, M.D.

RECORD OF MORTALITY

FOR THE WEEK ENDING SATURDAY, JANUARY 8, 1898.

Cities.	Estimated population.	Reported deaths in each.	Deaths under five years.	Percentage of deaths from					
				Infectious diseases.	Acute lung diseases.	Typhoid fever.	Diphtheria and croup.	Scarlet fever.	
New York . . .	1,868,080	770	259	10.14	18.72	.13	2.99	3.12	
Chicago . . .	1,619,226	—	—	—	—	—	—	—	
Philadelphia . . .	1,214,258	474	161	14.70	15.96	3.15	6.93	1.26	
Brooklyn . . .	1,160,000	—	—	—	—	—	—	—	
St. Louis . . .	570,000	—	—	—	—	—	—	—	
Baltimore . . .	550,000	185	56	8.10	9.72	1.62	4.32	.54	
Boston . . .	517,732	208	55	7.20	14.40	1.44	2.70	.48	
Cincinnati . . .	405,000	112	—	7.12	18.69	—	6.23	.69	
Cleveland . . .	350,000	61	22	4.68	15.60	1.56	3.12	—	
Pittsburg . . .	285,000	100	42	20.00	18.00	8.00	2.00	—	
Washington . . .	277,000	98	23	7.00	14.00	3.00	4.00	—	
Milwaukee . . .	275,000	—	—	—	—	—	—	—	
Nashville . . .	105,050	36	12	—	30.47	—	—	—	
Worcester . . .	105,050	37	13	8.10	13.50	2.70	—	—	
Fall River . . .	96,919	44	19	6.81	29.51	—	—	—	
Lowell . . .	87,193	30	5	3.83	26.16	—	3.33	—	
Cambridge . . .	66,812	36	4	—	13.85	—	—	—	
Lynn . . .	65,220	12	—	8.33	—	—	—	—	
Charleston . . .	65,165	31	7	3.23	9.69	3.23	—	—	
New Bedford . . .	62,418	21	9	4.76	23.40	—	—	—	
Lawrence . . .	55,510	24	12	16.64	16.64	4.16	12.48	—	
Springfield . . .	54,730	28	9	7.14	10.71	—	3.57	3.57	
Holyoke . . .	42,364	12	5	25.00	8.33	—	8.33	—	
Portland . . .	40,000	—	—	—	—	—	—	—	
Salem . . .	36,062	13	3	23.07	7.69	15.38	7.69	—	
Brockton . . .	35,853	9	0	—	22.22	—	—	—	
Malden . . .	32,894	7	1	14.28	14.28	—	—	—	
Chelsea . . .	32,716	12	2	8.33	25.00	—	—	—	
Haverhill . . .	31,406	4	1	—	25.00	—	—	—	
Gloucester . . .	29,775	—	—	—	—	—	—	—	
Newton . . .	28,990	6	0	—	—	—	—	—	
Fitchburg . . .	28,392	9	2	—	11.11	—	—	—	
Taunton . . .	27,812	17	3	—	—	—	—	—	
Quincy . . .	22,862	—	—	—	—	—	—	—	
Pittsfield . . .	21,891	—	—	—	—	—	—	—	
Waltham . . .	21,812	5	1	40.00	—	—	20.00	20.00	
Everett . . .	21,575	4	1	—	50.00	—	—	—	
Northampton . . .	17,448	—	—	—	—	—	—	—	
Newburyport . . .	14,794	4	1	—	—	—	—	—	
Amesbury . . .	10,920	—	—	—	—	—	—	—	

Deaths reported 2,489; under five years of age 751; principal infectious diseases (small-pox, measles, diphtheria and croup, cerebro-spinal meningitis, diarrheal diseases, whooping-cough, erysipelas and fevers) 247, acute lung diseases 417, consumption 275, diphtheria and croup 93, typhoid fever 39, scarlet fever 37, diarrheal diseases 25, measles 22, whooping-cough 12, cerebro-spinal meningitis 10, erysipelas 3, malarial fever 3, puerperal fever 3.

From diarrheal diseases Philadelphia 9, New York 7, Fall River 3, Baltimore and Providence 2 each, Boston and Worcester 1 each. From measles New York 13, Pittsburg 5, Philadelphia 4. From whooping-cough Pittsburg 5, Philadelphia 3, New York 2, Baltimore and Boston 1 each. From cerebro-spinal meningitis New York 3, Boston and Holyoke 2 each, Lynn, Malden and Chelsea 1 each. From erysipelas New York 3, Boston 1. From puerperal fever Boston, Worcester and New Bedford 1 each.

In the thirty-three greater towns of England and Wales, with an estimated population of 10,992,524, for the week ending January 1st, the death-rate was 24.9. Deaths reported 5,266; acute diseases of the respiratory organs (London) 702, measles 289, whooping-cough 150, diphtheria 88, fever 46, scarlet fever 37, diarrhea 37.

The death-rates ranged from 14.1 in Birkenhead to 37.4 in Norwich; Birmingham 24.8, Cardiff 18.1, Gateshead 15.5, Hull 19.2, Leeds 27.6, Leicester 24.1, Liverpool 27.1, London 27.6, Manchester 22.9, Newcastle-on-Tyne 21.1, Nottingham 24.0, Sheffield 22.4, Sunderland 19.1.

METEOROLOGICAL RECORD

For the week ending January 8th, in Boston, according to observations furnished by Sergeant J. W. Smith, of the United States Signal Corps:—

Date.	Baro- meter	Thermom- eter.			Relative humidity.			Direction of wind.		Velocity of wind.		We'th'r. .		Rainfall in inches.
	Daily mean.	Daily mean.	Maximum.	Minimum.	8.00 A. M.	8.00 P. M.	Daily mean.	8.00 A. M.	8.00 P. M.	8.00 A. M.	8.00 P. M.	8.00 A. M.	8.00 P. M.	
S...2	29.96	16	23	9	61	29	45	N.W.	S.W.	12	12	C.	C.	.05
M...3	29.91	20	30	9	61	31	46	S.W.	N.W.	15	18	C.	C.	
T...4	30.30	15	27	3	48	63	56	N.W.	S.E.	8	12	F.	C.	
W...5	30.08	28	40	15	87	62	71	W.	W.	9	11	C.	C.	
T...6	29.98	38	45	31	78	71	74	S.W.	S.	8	13	O.	O.	
F...7	29.72	38	44	32	96	80	88	N.W.	S.W.	14	11	R.	C.	
S...8	29.68	40	49	31	70	76	73	S.	W.	10	17	C.	O.	

* O., cloudy; C., clear; F., fair; G., fog; H., hazy; S., smoky; R., rain; T., threatening; N., snow. † Indicates trace of rainfall. — Mean for week.

OFFICIAL LIST OF CHANGES IN THE STATIONS AND DUTIES OF OFFICERS SERVING IN THE MEDICAL DEPARTMENT, U. S. ARMY, FROM JANUARY 8, 1898, TO JANUARY 14, 1898.

The leave of absence granted MAJOR EGON A. KOEPPER, surgeon, Fort Crook, Neb., is extended two months.

CAPTAIN PETER R. EGAN, assistant surgeon, is relieved from duty at Fort Hamilton, N. Y., and assigned to duty at Fort Hancock and the Sandy Hook Proving Ground, N. J., with station in New York City, and will make daily visits to and between those points until he shall be furnished with suitable quarters at Fort Hancock.

Leave of absence from or about February 1 to April 10, 1898, is granted LIEUT.-COL. DAVID L. HUNTINGTON, deputy surgeon-general, Surgeon-General's Office, Washington, D. C.

COLONEL DALLAS BACHE, assistant surgeon-general, will be relieved from duty as chief surgeon, Department of the Platte, on January 20, 1898, and will repair to Washington, D. C., and report in person to the Surgeon-General of the Army, to assume charge of the Museum and Library Division of his office to enter upon duty April 10, 1898, as professor of military medicine in the Army Medical School, to which he is assigned accordingly.

OFFICIAL LIST OF CHANGES OF STATIONS AND DUTIES OF COMMISSIONED OFFICERS OF THE UNITED STATES MARINE-HOSPITAL SERVICE FOR THE FOURTEEN DAYS ENDING JANUARY 13, 1898.

CARTER, H. R., surgeon. To proceed to the Gulf coast and supervise post epidemic disinfection. January 4, 1898.

WHITE, J. H., passed assistant surgeon. To proceed to the Gulf coast for special duty. January 4, 1898.

MAGRUDER, G. M., passed assistant surgeon. When relieved by Passed Assistant Surgeon W. J. S. STEWART, to proceed to Birmingham, Ala., for special duty. December 31, 1897.

STEWART, W. J. S., passed assistant surgeon. Thirty days' leave of absence granted by Bureau letter of December 7, 1897, revoked, and directed to proceed to Memphis, Tenn., and assume temporary command of Service. December 31, 1897.

PETTUS, W. J., passed assistant surgeon. To assume command of Service at Norfolk, Va., in addition to duties as commanding officer of the Cape Charles Quarantine. January 10, 1898.

WERTENBAKER, C. P., passed assistant surgeon. Granted seven days' leave of absence from January 9, 1898. January 7, 1898.

GARDNER, C. H., passed assistant surgeon. Upon being relieved by Passed Assistant Surgeon W. J. PETTUS, to rejoin station at Baltimore, Md. January 10, 1898.

HASTINGS, HILL, assistant surgeon. To proceed to Birmingham, Ala., and report to Passed Assistant Surgeon G. M. MAGRUDER for special temporary duty. January 8, 1898.

McMULLEN, JOHN, assistant surgeon. To proceed to Chicago, Ill., and report to the commanding officer for duty and assignment to quarters. January 10, 1898.

OFFICIAL LIST OF CHANGES IN THE MEDICAL CORPS OF THE U. S. NAVY FOR THE WEEK ENDING JANUARY 15, 1898.

KIDDER, B. H., medical director, detached from duty with the Medical Examining Board, Washington, January 21st, and ordered home on waiting orders. Retired, January 23d.

A. W. DUNBAR, passed assistant surgeon, detached from the "Vermont" and ordered to the "Nashville," January 15th; on arrival of "Nashville" on the European station ordered to the "San Francisco."

TALKS ON THE HISTORY OF MEDICINE.

Dr. David Hunt, of Boston, will give informal lectures on "The History of Medicine," by invitation of the Harvard Medical Alumni Association, at the Harvard Medical School on Thursdays, January 13th, 20th, 27th, at 8 P. M. The profession and the students of the Harvard Medical School are cordially invited to attend.

J. S. STONE, M.D., Secretary.

SOCIETY NOTICES.

BOSTON SOCIETY FOR MEDICAL IMPROVEMENT.—A regular meeting of the Society will be held at the Medical Library, 19 Boylston Place, on Monday evening, January 24th, at 8 o'clock.

Dr. R. C. Cabot will read a paper entitled: "Acute Pericarditis as a Cause of Hepatic Enlargement, with the Report of a Case." Drs. G. M. Garland, H. F. Vickery and G. G. Sears are expected to take part in the discussion.

Dr. G. L. Goodale will read "On the Treatment of Certain Forms of Cervical Adenitis by the Introduction of Medicaments into the Crypts of the Falcular Tonsils." For the discussion Drs. S. W. Langmaid and F. C. Cobb.

JAMES G. MUMFORD, M.D., Secretary, 197 Beacon St.

SUFFOLK DISTRICT MEDICAL SOCIETY.—The Section for Obstetrics and Diseases of Women will meet at 19 Boylston Place, Wednesday, January 26, 1898, at 8 P. M.

Papers: Dr. Wm. M. Conant, "Two Twisted Pedicled Ovarian Cysts, with Complications."

Dr. C. G. Cumston, "Remarks on the Pathology of Epithelioma of the Uterus."

F. W. JOHNSON, M.D., Chairman.
C. H. HARE, M.D., Secretary.

MEDICAL SOCIETY OF THE STATE OF NEW YORK.—The ninety-second annual meeting will be held January 25, 26 and 27, 1898, in the City Hall, Albany, commencing at 9.15 A. M. on the 25th and ending at 1 P. M. on the 27th.

Business Committee: Willis G. Macdonald, Chairman, 27 Eagle St., Albany, Ernest Wende, Buffalo, B. Farquhar Curtis, New York.

OBSTETRICAL SOCIETY OF CINCINNATI.—At its annual election the Obstetrical Society of Cincinnati elected officers as follows: President, Dr. E. S. McKee; Recording Secretary, Dr. Wm. Gillespie.

BOOKS AND PAMPHLETS RECEIVED.

The Treatment of Laryngeal Tuberculosis with Cupric Interstitial Cataphoresis, with Report of Cases; The Advantages of Direct Laryngoscopy in this Method. By W. Scheppegegrell, A.M., M.D., New Orleans, La. Reprint. 1897.

The Earliest Recorded Discovery of Thermal Springs. By Prosser James, M.D., Late Lecturer on Materia Medica and Therapeutics at the London Hospital, and Physician to the Hospital for Diseases of the Throat, etc. London: John Bale, Sons & Danielsson, Ltd. Reprint. 1897.

Original Articles.

HEART COMPLICATIONS IN DIPHTHERIA.¹

BY CLEON MELVILLE HIBBARD, A.M., M.D.,
First Assistant Resident Physician, South Department of the Boston
City Hospital.

THE following observations are the result of a study of 800 consecutive cases of diphtheria in the South Department of the Boston City Hospital:

Pulse-Rate.—Observations on the maximum rate were made in 798 cases; the results were as follows:

Rate.	Recovered.	Died.	Mortality.
Less than 130	436	22	4.8%
130	114	22	16.2
140	85	19	18.2
150	24	16	40.0
160	18	23	56.1
170	1	7	75.0
180 and higher	1	10	90.9

In over half of the cases the rate did not exceed 130 per minute, and the mortality among these was less than five per cent. As the rate increased so did the percentage of death. Less than half of those whose rate was 150 or over, recovered. In other words, a high pulse-rate of 150 or more is prognostic usually of a fatal result.

Bradycardia.—In 23 cases the pulse-rate was as low as 60 per minute on one or more occasions. Among the 14 who were seventeen years of age or older there were no deaths, and only two had other cardiac symptoms. Of the six who were less than seven years, there were four deaths from heart and one from lung disease. Of nine who were less than seventeen years, all but one had had some other cardiac symptom.

Thus it appears that in diphtheria a transitory slow pulse in adults has no special significance; while in children, and particularly in young children, it is a symptom of cardiac trouble, often of a grave nature.

Irregularity of Pulse.—This was noted in 70 cases of this series; but this number cannot be taken to represent the exact frequency, as some cases were doubtlessly not recorded. However, it can be safely said that at least 10 per cent. of diphtheria cases have an irregular or an intermittent pulse some time during the course of the disease. It was observed generally in the severe cases of infection, and but six times in the mild attacks.

The time when it was first recognized varied anywhere from the day of admission to several weeks in the convalescence; often it was during the first few days that the patients were up, especially if they became fatigued. The duration lasted from a day to weeks. Excepting in the fatal cases, it usually disappeared in a few days if the patient remained quiet in bed.

The significance of this irregular pulse is shown by the fact that in over half of the cases where it was observed there were other heart symptoms, as murmurs, or the patient died of cardiac trouble, as from dilatation and heart paralysis.

An irregular or intermittent pulse was often noticed several days before the appearance of the systolic murmur at the apex.

The frequency of this irregularity in the fatal cases of diphtheria is seen in the statement that it was noted in one-fourth of them, which is surely too low a percentage. The mortality among these 70 cases, with an ir-

regular pulse, was 31, or about 47 per cent.; in 19 of the 70 cases there was also an intermittency with nine deaths.

The cause of this arrhythmia is most probably due to certain changes in the vagus nerve interfering with the innervation of the heart or to local changes in the cardiac ganglia or the myocardium.

No record was kept of irregularities in the volume of the pulse. However, it was often noticed when the rate was rhythmical; and such variations in the volume are surely as common as in the time.

A weak pulse was more frequent than an irregular one, and was of about the same clinical importance as to the prognosis and the treatment.

A reduplication of the heart's second sound was observed in six cases. A systolic murmur at the apex was heard in four of these. Three of these six cases died. There were doubtless other instances of a reduplication that were overlooked. Still, one must consider this as a symptom indicative of a possible serious result.

Cardiac Murmurs.—All the murmurs heard in the children in this series were systolic in time, with the exception of three cases of chronic heart disease. The location was about equally divided between those heard loudest at the base and those loudest at the apex.

The basal murmurs, usually most distinct over the pulmonic area, were frequently heard on admission, continuing for a few days; or during convalescence, especially in anemic patients.

A systolic murmur at the apex was noted 57 times in this series. In another series of 252 cases where the hearts were examined almost daily a systolic murmur at the apex was heard in 28 patients. In other words, a systolic murmur at the apex with an accentuated pulmonic second sound, and often with some enlargement of the cardiac dulness is seen in about ten per cent. of diphtheria cases during the course of the disease. The time when it first appeared in 44 cases was as follows:

During first week of illness	9 cases.
“ second “ “	2 “
“ third “ “	9 “
“ fourth “ “	5 “
“ fifth “ “	2 “
“ ninth “ “	1 case.

The duration of this murmur varied from one day to several months. In 24 cases where the heart was under observation until the murmur disappeared the time was as follows:

Within one week	10 cases.
“ two weeks	6 “
“ three “	5 “
“ four “	1 “
“ five “	1 “
“ eight “	1 “

There were 15 cases in which the murmur was heard on discharge at the end of from five to sixteen weeks from when first observed, and in some of these cases it was heard two months after leaving the hospital.

The character of this murmur varied from a very soft blowing sound to a rough one. In some it could not be heard outside of the apex; in others it was transmitted into axilla or heard over the left back. In two cases it was musical. This character of the murmur appeared in one on the tenth day, and was still heard at the end of five months; the other on the thirtieth day, and disappeared in two weeks.

There is no special prognostic significance to an api-

¹ This paper will appear in the Medical and Surgical Reports of the Boston City Hospital for 1898.

cal systolic murmur with an accentuated pulmonic second sound when the patient is kept quiet. The mortality among these cases having such a murmur was practically the same as for diphtheria cases in general. However, when there is associated with these signs marked enlargement of the area of cardiac dulness, that is in children, as much as two centimetres outside of the normal limit, the prognosis is usually fatal. In other words, the significance of this murmur depends entirely on the nature of its cause.

The etiology of this murmur in diphtheria is probably due to a variety of conditions; possibly, but rarely, to an endocarditis from the diphtheria bacillus;² but generally to a relative mitral insufficiency. This inadequacy is due in all probability to an insufficient contraction of the cardiac muscle, or to a dilatation of the ventricle owing to changes in the innervating nerve or the myocardium itself.

If the murmur is due to only a slight weakness of the heart muscle, the prognosis is usually good, since the murmur generally disappears after a few weeks, providing the patient is kept quiet in bed. If the cause is from a dilatation of the ventricle the outlook is less favorable, and depends upon the degree of the dilatation.

To sum up — The great importance of this murmur is, that it informs the physician that there are some changes in the heart's machinery and that no extra strain should be put upon that organ; and it again informs him of the necessity of frequently determining the area of cardiac dulness in these patients to ascertain if there is any dilatation.

The treatment of these cases was, first of all, *rest in bed*; the patient was kept as quiet as possible in a recumbent position, usually, until the murmur had disappeared for a week. Then the child was allowed to sit up for a short while. The time of being up was extended if the murmur did not reappear, otherwise the child returned to bed. If the murmur persisted at the end of six or eight weeks and there was no dilatation, and the heart's action was regular, the patient was permitted to sit up an hour or less, daily, for a week. At the end of this time, there being no untoward symptoms, the time was gradually lengthened until the patient was up for the greater part of the day. In one instance it was four months before the patient could be up all day without ill effect on the heart. The medical treatment consisted usually in strychnia, alcohol, digitalis group and occasionally caffeine.

A discussion of 22 fatal cases of diphtheria, where the cause of death was chiefly due to some cardiac trouble, as dilatation, thrombi, paralysis, etc., is not without interest. Below is a brief clinical record of these cases, with a report of the post-mortem examination, from the records of the Pathological Laboratory of the hospital, where these were obtained. In eight cases,³ the pneumogastric nerve was examined by Dr. J. J. Thomas. As he has kindly given me the results of his findings,⁴ these are also added. He used Marchi's method of staining.

No. 59. Boy, aged five years. Had measles and scarlatina. Admitted July 17th, after an illness of two days,

with a moderate severe attack of diphtheria. There was nothing unusual in the course of the disease during the first week save that he was somewhat languid. On the fourteenth day the pulse was 130, irregular and weak. Cardiac dulness extended one and a half centimetres outside nipple line, and four centimetres to right of median line. There was a *bruit de galop* heard all over precordia, loudest at apex. The first sound over the pulmonic area was sharp and valvular. Vomited twice during the day; had a restless night. Next day had a partial collapse. Heart dulness one centimetre farther to both right and left, the apex beat in sixth space. A systolic murmur heard at apex. Pulse weak, irregular and intermittent. Complained of pain in right iliac region. No note of any paralysis. Died on the seventeenth day.

Post-mortem examination. Heart enlarged; weighed 120 grammes. All cavities much dilated and filled with post-mortem clots. Auricular-ventricular valves, especially the mitral, were dilated. Heart muscle yellowish and opaque. Congestion of lungs, liver, spleen and kidneys.

Pneumogastric nerve showed marked and extensive degeneration of a large proportion of the fibres, with considerable fatty change. Section of the floor of the fourth ventricle of the brain showed a moderate degeneration of the nerve fibres, while the cells were normal.

No. 68. Boy, aged three years. Had measles three months prior to admission. Entered hospital March 5th, with tonsillar and laryngeal diphtheria. Child improved rapidly and went home in eight days. Re-admitted in thirteen days on account of some laryngeal symptoms. Had then one-eighth of one per cent. of albumin with casts and fatty renal cells. Edema of ankles. On the thirtieth day had a collapse; pulse, which had varied between 110 and 130, was so rapid and weak that it could not be counted. A systolic murmur heard at apex. Died suddenly the same day. There was a nasal voice; he was rather dull and stupid during the last week.

Post-mortem examination. Heart enlarged, weight, 120 grammes. Valves and cavities normal. Slight bronchopneumonia and general acute lymphatic hyperplasia.

Pneumogastric nerve showed considerable numbers of degenerated fibres, with but little fat. Most of the fibres were, however, normal.

No. 79. Boy, aged three years. Admitted March 31st, after an illness of five days, with laryngeal diphtheria. He was intubed on entrance. The tube was removed twice, but had to be re-introduced at once. On the eleventh day in hospital coughed the intubation tube up and was dead in less than a minute. No note of any paralysis.

Post-mortem examination was practically negative save for slight hyperplasia of the lymph glands. Heart: weight, 65 grammes, normal.

Pneumogastric nerve showed marked degenerative changes of most of the fibres. There was considerable fat present in both the nerve sheath and the axis cylinder.

No. 105. Boy, aged five years. Had measles. Admitted July 19th, with diphtheria of two weeks' standing; was in a very septic condition. Pulse was weak, 78. He failed rapidly, and died the next day. No note of any paralysis.

Post-mortem examination. There was diphtheritic pharyngitis, tonsillitis, glossitis; congestion of lungs, spleen and liver with ascites and hydrothorax. Heart enlarged, weight 140 grammes. Left ventricle dilated; both sides contained clotted blood. Both mitral and tricuspid valves seemed somewhat dilated.

Pneumogastric nerve had rather a slight degeneration of the fibres, and only a moderate number of them were affected.

No. 117. Boy, aged twenty months. Admitted April 8th, with diphtheria of nose and throat of four days' continuance. Throat cleared up in four days. Pulse varied between 140 and 100. On the thirteenth day in the hospital he suddenly died. There was a profuse nasal discharge on the eleventh day. No post-mortem examination.

No. 171. Girl, aged two and one-half years. Admitted April 21st, with septic diphtheria of throat and nose after

¹ Dr. R. M. Pearce, in his Bacteriological Report, mentions a case of acute endocarditis in a patient who died of diphtheria, measles and pneumonia, where the origin may possibly have been from the Klebs-Löffler bacillus. (See Medical and Surgical Report of the Boston City Hospital for 1898.)

² Nos. 59, 63, 79, 106, 325, 331, 363 and 534.

³ A full and detailed description of this work is seen in the Medical and Surgical Report of the Boston City Hospital for 1898.

an illness of three days. She remained in a prostrated condition. Pulse varied from 110 to 130 and on the eighth day of illness fell to 80, weak in volume. Died on this day. No note of paralysis. No post-mortem examination.

No. 247. Girl, aged five years. Had measles. Admitted May 8th, with septic diphtheria of nose and fauces. On the third day pulse fell from 120 to 72; it had been irregular from the first. Had a collapse on this day, and died in seven hours. No record of paralysis. No post-mortem examination.

No. 284. Boy, aged fourteen years. Admitted May 18th, with a severe case of septic diphtheria of eight days' duration. Albumin one-eighth of one per cent. Began to vomit on third day in hospital, and this vomiting persisted. He had a marked nasal voice and regurgitation. He was dull and lost weight from the first. Pulse was very weak; no murmur. He suddenly died on the fifteenth day of the disease. No post-mortem examination.

No. 316. Girl, five years old. Admitted May 27th, with a moderately severe attack of diphtheria. Pulse, 120, regular, and of good strength. On the fourth day pulse fell from 90 to 50, and was of poor volume. The child had been in a rather languid state since admission, would not sit up in bed. No paralyzes were observed. She gradually failed, and died on the eighth day in the hospital. No post-mortem examination.

No. 325. Boy, aged six years. Admitted May 29th, with pharyngeal and nasal diphtheria of two days' continuance. During the first fortnight the throat cleared up. On admission, the heart area was normal, and a loud systolic murmur was heard at apex. Pulse varied between 120 and 70. The child took little interest in the affairs of the ward. The urine had a trace to one-eighth of one per cent. of albumin. There was paralysis of the palate. On the thirteenth day in the hospital the heart dulness had extended from one centimetre to the right of sternum to one centimetre to left of mammary line. Pulmonic second sound was accentuated. The second sound at the apex was reduplicated every ten or twelve beats. For a time the murmur disappeared. On the forty-first day the heart's dulness extended to two centimetres outside of nipple line. There was a soft systolic murmur at the apex; the reduplication was more constant. Died on forty-third day of his illness.

Post-mortem examination. Edema, congestion and some atelectasis of lungs. Heart slightly enlarged; weight, 115 grammes. Some hypertrophy, possibly, of left side.

Pneumogastric nerve had a very slight degenerative process, only a few fibres were affected, and rarely a few fat drops. Unfortunately none of the heart muscle was saved.

No. 331. Boy, eight years old. Admitted June 1st, with diphtheritic pharyngitis and some laryngeal symptoms of eight days' duration. On admission, heart-sounds and area normal. Pulse regular, varied for ten days between 70 and 100. Five days later he was noticed to be quite dull. His color was pale. Heart-sounds weak. Urine had one-eighth of one per cent. of albumin. Evidently losing weight. On the ninth day in the hospital there was a suggestion of a systolic murmur at the apex. He had a marked nasal voice. Two days later a faint murmur was heard. The first and second sound at the apex were of the same length. Occasionally there was a reduplication of the first or second sound. The action was irregular. Next day the radial pulse could not be felt. Heart beats were 134. He vomited some, and complained of pain in right knee and toe (the cause of this symptom was not evident). Patellar reflexes diminished. Extremities cold. Lips cyanotic. The following day, the fifteenth of illness, two hours before death, heart-rate was 200, and during inspiration would stop for three or four beats. A *bruit de galop* heard over the whole precordia.

Post-mortem examination. Heart enlarged, weight 155 grammes. Length from base to apex 13 centimetres; transverse diameter ten and a half centimetres. All cavities distended with blood. In the auricular appendages there

were delicately mottled grayish white clots. Tricuspid valve would almost admit the tips of four fingers, and the mitral three. The left ventricle greatly dilated, walls averaging eight-tenths to one centimetre in thickness.¹ Valve curtain normal. There was also atelectasis of left lung and subpleural ecchymoses.

Pneumogastric nerve had a moderately but diffuse degeneration of the fibres with little fatty change. In the medulla the nerve cells were normal, but the fibres were quite diffusely degenerated.

No. 363. Boy, aged six and one-half years. Had measles, scarlatina, diphtheria and pertussis. Admitted June 10th, with septic diphtheria of nose and throat, and was in a prostrated condition. He began to vomit on the third day and later would retain nothing by mouth. Urine contained one-tenth of one per cent. of albumin. Child was restless, rolled and tossed about the bed. Heart action regular; no murmur was ever heard; pulse was weak; there was nasal regurgitation. During the last two days he was semi-conscious and died on the eleventh day of his sickness.

Post-mortem examination. Heart slightly enlarged; weight 105 grammes. Left ventricle slightly dilated; mitral valve readily admitted two fingers beyond the first joint. Wall from 0.5 to 1.2 centimetres thick. Other valves normal. The rest of the examination showed a diphtheritic rhinitis and tonsillitis, and acute general lymphatic hyperplasia.

The pneumogastric nerve had a moderately extensive degeneration of the fibres, the majority of which showed the presence of fat.

No. 369. Girl, aged five years. Had measles, diphtheria, pneumonia, and was just over scarlatina and chorea. The symptoms of the latter still persisted. Admitted June 12th, after an illness of three days with diphtheria of nose and throat. The urine had one-eighth of one per cent. of albumin with some fat (post-scarlatina). Heart on admission was regular, and there was a loud systolic murmur at apex, which persisted until death. Pulse varied from 130 to 140. There was a nasal voice. Patient appeared to gain some during the first fortnight, then was at a standstill until about three days before death, which was on the twenty-first day in the hospital. She died in a partial collapse, which lasted about twelve hours.

Post-mortem examination. Pericardial fluid slightly increased. Heart enlarged; weight, 115 grammes. Left auricular appendage contained an irregular, rather roughened, grayish opaque thrombus $1 \times 1 \times 2$ centimetres. In left ventricle, on the anterior wall, was a thrombus $1 \times 4 \times 5$ centimetres; both sides of heart contained considerable clotted blood. Atelectasis of lungs with edema and congestion. Chronic passive congestion of liver.

No. 377. Boy, aged nine years. Had diphtheria and scarlet fever at six. Has always been excessively fat; weighed 120 pounds on admission, June 12th. He had then a severe septic diphtheria of nose and throat of three days' continuance. Pulse was weak and heart-sounds were faint. Albumin one-eighth to one-fourth of one per cent. Began to vomit in a few days, and this continued during life with more or less persistency. On the fourteenth day cried out with pain, referred to cardiac region; this would last for eight or ten minutes. Had a marked nasal regurgitation and voice, and had also great difficulty in swallowing. Towards the end, retained no food by mouth. He failed gradually, and during the last three days was delirious. Frequent examinations of the heart showed only a feeble and irregular action, no murmurs. Area of dulness undetermined on account of excessive fat. Died on the thirty-eighth day of illness. No post-mortem examination.

No. 400. Girl, aged two and one-half years. Admitted June 21st, with septic nasal and faucial diphtheria with considerable prostration; sick three days. There were several ecchymoses on body. Pulse varied from 100 to

¹ The normal length is 7.04 centimetres, breadth 7.44, thickness 0.86 for a child five to nine years old. (See Keating's Cyclopaedia of Diseases of Children, vol. xi, p. 790.)

120, and gradually became weak. Circulation poor, lips cyanotic, extremities cold. Child was languid, took nourishment poorly. Failed gradually from the first, and rapidly during the last two days. Died in a collapse on the ninth day of sickness.

Post-mortem examination. Heart enlarged; weight, 75 grammes. In the left ventricle, almost at apex, a yellowish, opaque, firm, rough thrombus one and one-half centimetres in diameter, attached by a small pedicle two centimetres from apex to the intra-ventricular septum. Besides this old clot, there were considerable elastic, transparent, pale, post-mortem clots. On section, the thrombus appeared to be of a uniform consistency. Valves normal. Other findings. Diphtheritic tonsillitis and rhinitis.

Pneumogastric nerve showed rather extensive degeneration of the fibres, with but little fat. In the medulla there was a slight, acute degeneration of the fibres, while the cells were normal.

Section of the heart and thrombus showed a degeneration of the myocardium where the thrombus was attached.

(To be continued.)

ACUTE DEGENERATIONS OF THE NERVOUS SYSTEM IN DIPHTHERIA.¹

BY JOHN JENKS THOMAS, A.M., M.D.,

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THE changes of the nervous system produced by acute infectious diseases are various, especially those produced by diphtheria. Various writers, since Charcot and Vulpian, in 1862, have described the changes in the peripheral nerves. These are usually of the parenchymatous type, consisting of a degenerative process, due to the presence of toxic products arising, in the course of the disease, directly or indirectly from the micro-organisms producing the disease. Nevertheless, the peripheral nerves undoubtedly show at times that an interstitial process has been added to the degenerative one. As regards the central nervous system, Klebs, Dejerine, Oertel, Buhl, P. Meyer, Krauss, Arnheim and Mendel all mention smaller or larger hemorrhages into the brain and spinal cord, and some of them describe processes which they considered to be a myelitis. Probably it is due to the effects of some such process as this, or to an inflammatory infiltration in the central nervous system that we see such diseases as multiple sclerosis following diphtheria, as the cases reported by Schönfeldt. More rarely we see vascular lesions of the brain, embolism, thrombosis or hemorrhage resulting in hemiplegia, as the cases reported by Hensch, Mendel, Jäckle, Auerbach, Edgren, Seifert, Donath, Apolant, Sharples, Sinkler, the writer and others. Meningitis has been described by Pierret, Dejerine and Barth. Whether this is from an infection of the meninges by the Klebs-Löffler bacillus, or due to infection with some of the other varieties of bacteria, so often found in the organs in cases dying of diphtheria, as by Wright, Froesch and others, will have to be determined by further investigations.

Thus we see that the changes produced in the nervous system by diphtheria are quite varied. The cases reported in this paper do not cover all the changes of the nervous structures in this disease, but show somewhat the extent of the acute degenerative changes produced by it. It is hoped that in a future paper some other points in the changes of the nervous system in diphtheria can be taken up, particularly the changes

in the nerve cells, as shown by Nissl's stain. These investigations were begun with the intention of seeing whether or not degenerative changes were common in the pneumogastric nerves of cases dying suddenly from failure of the heart during diphtheria, or during convalescence. Later, examinations were made of other nerves of the central nervous system, and of the heart muscle. While the number of cases is small, it seems to be enough to warrant us in drawing a few general conclusions. For the clinical notes of these cases I have to thank Dr. C. M. Hibbard, of the South Department, and the reports of the autopsies and results of cultures have been abstracted from the records of the pathological department of the Boston City Hospital with the kind permission of Dr. W. T. Councilman.

The cases are as follows: The numbers in parentheses refer to the numbers in the articles by Dr. J. H. McCollom and Dr. C. M. Hibbard.

CASE I. Boy, about ten years. Had been ill three days on entrance. Voice weak. On fifteenth day vomited; shortly after became pale and restless, with rapid and very feeble pulse. After some hours became more quiet, but respiration was rapid and he was still pale, almost cyanotic. Respirations rose to 70. Pulse feeble, and died about five hours after onset of symptoms. The membrane at this time had disappeared. Diphtheria bacilli were found on the eleventh day, however. There was no note of paralysis.

Autopsy.—September 13, 1895. Boy, about ten years. Body length, one hundred and twenty-seven centimetres. Heart: enlarged and cavities dilated, especially the right auricle, which was filled with dark clotted blood; weight, 180 gm. On opening the left ventricle several round, organized, pea-sized or smaller thrombi were found surrounding the chordæ tendineæ. The cusps of the aortic valve were thickened and somewhat retracted, and along their line of closure there was a number of pin-point-sized grayish vegetations. No membrane in pharynx or tonsils. Anatomical diagnosis: endocarditis, chronic fibrinous endocarditis of aortic valve, insufficiency of aortic valve, general dilatation and hypertrophy of heart, chronic passive congestion of liver, kidneys and spleen, anemia and cloudy swelling of liver, acute splenic tumor, chronic passive congestion of lungs, acute mesenteric lymphatic hyperplasia. No cultures.

Microscopical Examination. Pneumogastric nerve: sections showed a most intense and extensive degeneration of nerve fibres. It was impossible to find a fibre which was not affected in most of its course. The amount of fat in the nerve sheaths and axis cylinders was large. Many nerve fibres were represented by a chain of larger and smaller fat drops, with here and there a grayish outline of the fibre visible. In places the axis cylinder could be made out, but when present it was swollen and beaded or broken, and in many fibres no axis cylinders could be made out, but only the beaded, irregular fibre, containing many fat drops, could be seen.

CASE II. Girl, age two years. Was admitted with septic diphtheria. Pulse regular, rapid and strong. On the second day vomited. There was a discharge from the ears which ceased three days before death. On seventeenth day had a convulsion in the evening, and an hour and a half later clonic spasms, which continued for half an hour, when death ensued. The examination of the urine was negative.

Autopsy.—September 4, 1896. Clinical diagnosis: diphtheria. Slight congestion of the trachea. Heart: weight, 50 gm. (normal). Brain: normal. Anatomical diagnosis: chronic pericarditis, general lymphatic hyperplasia, subacute splenitis. Cultures: heart, sterile; liver, staphylococcus pyogenes aureus; spleen and kidneys, sterile.

Microscopical Examination. Pneumogastric nerve: many fibres were seen which were grayish in color,

¹ This paper will appear in the Medical and Surgical Reports of the Boston City Hospital, for 1898.

granular and swollen, with swollen and beaded axis cylinder. In a few of these fibres there were fat drops. About half of the fibres seemed affected. Sections of the obturator nerve showed the same changes to be present in this nerve, but to a more marked degree. Almost all the fibres were affected, and fat globules were present in large numbers. Anterior crural nerve: here there were similar changes affecting a large majority of the fibres, but fat, while present, was not seen in such amounts as in the obturator nerve. Lumbro-sacral cord: these sections showed an extensive degeneration. Most of the nerve fibres were affected to a greater or less extent. The amount of fat showed considerable variation. In places it was present in moderate amount, while in other places almost every nerve fibre showed the presence of numerous fat globules.

CASE III. Boy, age six years. Admitted with diphtheria. At first there was albumin in the urine, which later diminished to a mere trace. On twelfth day, vomited. Pulse became weaker and more rapid, and the child died on the thirteenth day in collapse. There was no note of paralysis.

Autopsy.—September 11, 1896. Heart: weight 135 gms. Left ventricle dilated. Mitral valve insufficient. Foramen ovale patent. Brain was normal except for increase of fluid in the ventricles. Anatomical diagnosis: open foramen ovale, general ascites, follicular enteritis. Trachea, larynx, etc., normal. No cultures.

Microscopical Examination. Pneumogastric nerve. Cross-section: few fibres showed replacement of axis cylinder or myelin sheath by fat. Almost all showed a brownish discoloration, and in many myelin sheaths the grayish ring was irregular and of varying thickness. Some fibres were much swollen. The axis cylinders had lost their refractive appearance, and sometimes had entirely disappeared. Longitudinal sections: there were a few fat globules on the nerve sheaths and inside them. The sheaths were stained grayish, and were very irregular, striated and granular in appearance. The axis cylinder, when present, was grayish in color and much beaded. Many of them were broken into short masses, some normal in color, others stained gray. In many cases the axis cylinder could not be made out. Phrenic nerve: changes similar to those seen in the pneumogastric nerve were found, but less marked, and only about half the fibres seemed affected. Splanchnic nerve seemed perfectly normal. Semi-lunar ganglion showed no marked fatty changes of fibres or cells. Heart: the muscular fibres of the heart had lost in part their striations, though in most of them longitudinal striations could be seen. Some of the fibres had a homogeneous appearance. Very rarely fibres were seen containing fat drops, and occasionally one containing a vacuole. Many of the small blood-vessels were dilated, and filled with blood, and there were occasional hemorrhages into the connective tissue about the blood-vessels. Here and there throughout the connective tissue, sometimes in the neighborhood of a blood-vessel, there were infiltrations of small, round lymphoid cells, with round, deeply staining nuclei and little protoplasm. There were also occasional larger cells, with less deeply staining, granular nuclei and more protoplasm. Similar areas of infiltration were seen here and there in the muscular substance.

CASE IV. Woman, age sixty-one years. Admitted with septic laryngeal and faucial diphtheria, broncho-pneumonia, asthma and cardiac disease. She had been ill two days. She had vomiting. Cultures from the throat showed pure diphtheria bacillus growth. The clinical diagnosis of diphtheria in all cases was made only after examination of cultures from the throat. She had some difficulty in breathing (asthma). Pulse regular. On the third day after admission she had a sudden collapse. Respiration very rapid. Very cyanotic. Pulse very weak. She had had a nasal voice, and regurgitation of fluids through the nose.

Autopsy.—February 22, 1897. Clinical diagnosis: diphtheria. Tonsils enlarged and reddened; in places cov-

ered by small patches of grayish-white, rough pseudo-membrane, which could be easily removed, leaving a red surface. Beginning near the tip of the epiglottis, a thick, dirty gray membrane extended through the larynx and trachea into the bronchi. This membrane could be easily removed, leaving a rough, red, angry surface. The membrane could be followed in the bronchi of the lung beyond the fourth bifurcation, as far as the bronchi could be recognized and laid open. On section of the lung there were seen in the small bronchi small white dots of membrane, which could be removed with forceps, bringing with them membrane extending into the bronchioles and forming a perfect cast of the air vessels. Heart: weight, 330 gm. Much pericardial fat. Heart muscle flabby, brownish-red color. On the surface of the papillary muscle, here and there, were yellowish spots in marked contrast with the darker heart muscle. In frozen sections the heart muscle was seen to contain small accumulations of fat in extremely small droplets. The valves and cavities otherwise normal. Coronary arteries dilated, tortuous, with walls irregularly thickened in places, and calcareous. Anatomical diagnosis: diphtheritic tonsillitis, laryngitis, tracheitis, and bronchitis, edema of lungs, fatty myocarditis, arterio-sclerosis, acute splenic tumor, acute parenchymatous degeneration of liver and kidneys, fibroids of uterus, chronic peritonitis. Cultures: right lung, lower lobe, abundant Klebs-Löffler bacillus. Liver and kidney, colon bacillus. In lung, liver, spleen and kidneys there was also an organism which grew in raised bead-like colonies, which stained faintly with Löffler's methyl-blue stain, but well with fuchsin and carbogentian violet stains. It was oval, or rather elongated, in form, with a suspicion of a capsule. Reddened litmus milk. Not motile.

Microscopical Examination. Pneumogastric nerve: sections stained by Marchi's method showed marked degeneration, scarcely any of the fibres being free from changes. These varied considerably in degree, from grayish discoloration and granular appearance of the nerve sheath and axis cylinder to disappearance of the latter and replacement of it, and of the myelin sheath to greater or less extent by fat drops. The fibres least affected appeared granular and beaded, and the axis cylinder even in these fibres could not always be distinguished.

CASE V.—Girl, about two and one-half years, was admitted with septic laryngeal diphtheria, and had had seven hemorrhages. She had been ill for six days. The pulse was very weak. The child was intubed at once, but did not breathe any better, so the tube was removed, and she died almost immediately.

Autopsy.—March 2, 1897. Clinical diagnosis: diphtheria with hemorrhage. Heart: weight, 75 gm. Valves and cavities normal. Trachea and bronchi down to the third division of the bronchi showed a firm, well-formed membrane which was stained with blood. The bronchi were filled with blood. The membrane was very well marked in the larynx and area around the epiglottis, where it had become slightly separated. The membrane extended up over the pharynx and tonsils, and slightly inwards over the tongue. The origin of the hemorrhage could not be found. Anatomical diagnosis: acute diphtheritic tonsillitis, laryngitis, epiglottitis, tracheitis and bronchitis with hemorrhage, acute broncho-pneumonia of right lung, with hemorrhage, acute swelling of liver and kidneys, acute lymphatic hyperplasia, acute splenitis. Cultures: trachea, many Klebs-Löffler bacilli; lung, liver and spleen, streptococci and Klebs-Löffler bacilli; kidney, many Klebs-Löffler bacilli.

Microscopical Examination. Pneumogastric nerve: the sections showed a considerable amount of degeneration, and the presence of a moderate amount of fat in the nerve fibres. Many of the myelin sheaths were granular, irregularly swollen and broken. The axis cylinders were much beaded and broken. Fully one-half of the nerve fibres showed changes, more or less marked.

CASE VI (3). Boy, age two years. Admitted with laryngeal diphtheria, and lived two days. Died of bron-

cho-pneumonia. No heart symptoms. Pulse varied between 145 and 175. No paralysis noted.

Autopsy. — March 15, 1897. Clinical diagnosis: diphtheria. Heart: weight, 80 gm. Valves and cavities normal. Pericardium normal, except that it contained about 20 c. c. of clear fluid. Trachea as far down as the bifurcation and the larynx showed a firm, grayish membrane, which in some places was separated from the trachea, and showed beneath a newly-formed membrane. The epiglottis, on its under surface, was covered with membrane. The pharynx showed small spots of this same membrane, and the tonsils showed excavations which were lined with this same membrane. Anatomical diagnosis: acute diphtheritic tonsillitis, pharyngitis, epiglottiditis, bronchitis and laryngitis, acute broncho-pneumonia of upper and lower lobes of right lung, general acute lymphatic hyperplasia. Cultures: right lung, upper and lower lobes, streptococcus; liver, streptococcus (pure); spleen, streptococcus; kidney, an organism resembling the pneumococcus, occurring in short chains, but not the streptococcus; right middle ear, few streptococci.

Microscopical Examination. Pneumogastric nerve: sections from this case showed a considerable number of fibres affected. They were swollen and granular in appearance, and in the greater part of them fat globules could be seen in some part of their course. The axis cylinders in the fibres most affected were absent, and in others were swollen and beaded.

CASE VII (63). — Boy, age three years. Was admitted March 3, 1897, with diphtheria, and went home in eight days. Thirteen days later was readmitted with some symptoms of laryngitis. Nine days later, or on the thirtieth day from the first admission, the pulse, which had varied between 110 and 130, became more rapid, and so weak it could not be counted, and the child died in collapse. He had had a nasal voice.

Autopsy. — April 3, 1897. Clinical diagnosis: diphtheria. Tonsils and pharynx normal, except that the tonsils were very much enlarged, and granular. The larynx was normal, the epiglottis was covered with a whitish membrane, which was quite firm, and required some force to remove it. This membrane covered only the epiglottis, and did not extend through any part of the larynx. The mucous membrane of the larynx was hyperemic, otherwise normal. Heart: weight, 120 gm. Valves and cavities normal. Brain: weight, 1,390 gm., normal. Anatomical diagnosis: diphtheritic epiglottiditis, acute broncho-pneumonia of upper lobe of left lung, hydrothorax, hydro-pericardium, general acute lymphatic hyperplasia. Cultures: lung, streptococci; liver, abundant streptococci, one colony of Klebs-Löffler bacillus; spleen, negative; kidney, sterile.

Microscopical Examination. Pneumogastric nerve: sections showed the presence of a considerable number of fibres which were stained gray, and of which the myelin sheath was irregular, swollen, granular and broken. The axis cylinders could usually be distinguished, but they were swollen, beaded and broken. Fat drops were few in number. The greater part of the fibres showed no changes.

CASE VIII (78). — Boy, age nine months. Admitted with diphtheria of the nose, cultures being positive, after an illness of seven days. Lived six days. No paralysis noted.

Autopsy. — April 7, 1879. Clinical diagnosis: post-diphtheritic cardiac paralysis. Brain: weight, 880 gm. Vessels of pia injected, otherwise brain was normal. Tonsils, pharynx and larynx normal. On the under surface of the epiglottis, near the base, on the right side, there was a small patch of grayish-yellow membrane, beneath which the mucous membrane was rough and red. On the other side the mucous membrane was rough and of a dull red color. Trachea normal. Heart: weight, 50 gm. Valves and cavities normal. Anatomical diagnosis: diphtheritic epiglottiditis, constriction of esophagus, broncho-pneumonia and bronchitis, general lymphatic hyperplasia. Cultures: right lung, upper lobe, strepto-

coccus, and abundant Klebs-Löffler bacillus; liver, Klebs-Löffler bacillus and streptococcus; spleen, streptococcus (pure); kidneys, streptococcus; right middle ear, abundant streptococcus, few Klebs-Löffler bacilli, and two colonies of staphylococcus pyogenes aureus.

Microscopical Examination. Pneumogastric nerve: sections showed marked degenerative changes. Most of the fibres contained fat drops, some of them in large numbers. The nerve sheaths did not show any marked granular changes, but were much swollen and broken. The axis cylinders were absent in many cases, being replaced by drops of fat. In other fibres they appeared beaded, or were fairly normal.

CASE IX (79). Boy, age three years. Admitted after an illness of five days, and lived ten days after admission. The child had laryngeal diphtheria, and was intubed. He coughed the tube up, and died suddenly. No paralysis noted.

Autopsy. — April 11, 1897. Child, of apparently one and one-half years. Tonsils, pharynx, larynx and trachea normal. Heart: weight 65 gm. Valves and cavities normal. Pericardium normal. Brain: slight edema of pia, otherwise normal. Anatomical diagnosis: acute general lymphatic hyperplasia, acute splenitis, toxemia (?). Cultures: heart blood, streptococcus; liver, streptococcus; spleen, streptococcus; kidney, few streptococci.

Microscopical Examination. Pneumogastric nerve: sections showed marked degenerative changes of most of the nerve fibres. The nerve sheaths were grayish in color, granular and swollen, and showed the presence of considerable fat. The axis cylinder was often absent, and when present was usually beaded or broken, and replaced by fat drops.

CASE X (331). Boy, age eight years. Had been ill for ten days when admitted. For ten days the pulse varied between 70 and 100. On the tenth day the pulse rose to 134 and became weak. He vomited. Extremities were cold. There had been a marked nasal tone to the voice, and the knee-jerks were diminished. On the thirteenth day of his stay in the hospital, and the twenty-first day of the disease the face became pale, the lips cyanotic, while the pulse rose to 200, and became intermittent, and the child died.

Autopsy. — June 13, 1897. Clinical diagnosis: diphtheria. Heart: left ventricle greatly dilated; mitral orifice admitted tips of three fingers; weight, 155 gm. Pharynx, trachea, etc., normal. Brain: weight, 1,250 gm. Much fluid beneath the pia. Brain substance rather moist. Spinal cord, normal. Anatomical diagnosis: dilatation of heart. Cultures: sterile.

Microscopical Examination. Pneumogastric nerve: sections showed a diffuse degeneration of nerve fibres of moderate intensity. The myelin sheaths were stained gray in color, and were much swollen, while many were broken, but few showed any granular appearance. In many instances the axis cylinder could not be made out, but in others it was swollen and beaded. Fat globules were rare. The sciatic nerve showed about as extensive degeneration as the pneumogastric, but fat was present in moderate amounts. The anterior crural nerve showed similar changes, but affecting almost all the nerve fibres and more intense, while fat was present in the nerve structures in large quantities. Spinal cord: the membranes of the cord were normal. The nerve roots, both anterior and posterior, showed extensive degeneration. Many of the nerve fibres showed the presence of fat drops in, or replacing the myelin sheath. In many of these degenerated fibres the axis cylinder had disappeared, sometimes being replaced by a fat drop, while at other times no sign of it could be seen. In the white substance of the cord there was a moderate diffuse degeneration of nerve fibres. In many cases the axis cylinder was replaced by a drop of fat. In others the myelin sheath was represented by a complete or broken ring of fat with empty centre, or containing a swollen axis cylinder. Again, the nerve fibre was represented by a large drop of fat replacing both sheath and axis cylinder. This degeneration was found in

all parts of the white matter, but was somewhat more extensive in the posterior columns. In the gray matter of the cord the blood-vessels appeared dilated, but no hemorrhages were found there or in any other part of the cord. Occasional degenerated fibres showing fat drops were seen throughout the gray matter. The nerve cells of the anterior horn showed practically no changes; there was no fat present in them. In a few cases the nucleolus stained poorly and was irregular in outline. Occasionally a cell was seen which appeared shrunken. In a few cases the processes were separated from the cell body — probably an artefact. The nerve cells of other parts of the gray matter appeared normal. The neuroglia did not appear increased. Sections of the medulla at the upper part of the pyramidal crossing showed the same diffuse degeneration of the nerve fibres. The nerve cells appeared normal. Sections of the pons showed a marked degeneration of the fibres of the superior cerebellar peduncle with the presence of much fat. The fibres of the formatio reticularis showed a slight diffuse degeneration with a small amount of fat. There was a marked degenerative process in the root of the fifth nerve with a large amount of fat. Sections of the cortex of the brain were practically normal, although occasionally a fibre was seen which showed the presence of fat.

(To be continued.)

REMARKS UPON THE PROPER SURGICAL TREATMENT OF TUBERCULOUS BONE DISEASE.¹

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THE surgical treatment of tuberculosis of bone is a subject about which it is difficult to generalize, for the varying conditions of the patient and the part affected often call for a corresponding variation of the plan of treatment.

A tuberculosis is an infective process against which the tissues strive to protect themselves with very various degrees of success in different parts of the body and in different persons. The process by which this protection is obtained is mainly by the formation of a wall of connective tissue, more or less dense, about the tuberculous mass, shutting it in and preventing its spread through the tissues. When this protective effort is of sufficient power to successfully resist the tuberculosis, it does so by thoroughly encapsulating the process and, in that case, the masses of bacilli, cells and the waste products of the cells are compressed within a slowly contracting capsule and undergo cheesy degeneration until, finally, they may even be changed to chalky concretions.

The success of this limiting effort on the part of the tissues depends in a considerable degree upon the vigor of the individual, so that in tuberculous disease of bone (as is well known in tuberculous disease in the lung) a decided improvement in the surroundings and habits of the patient may bring about a cessation of the process.

In many cases of bone tuberculosis the surgeon's reliance must be upon this power of nature to limit the process and must be directed wholly to the patient's general condition with the added benefit of rest to the diseased part, which our back-braces, hip-splints and other fixative apparatus provide.

The numberless cases of recovery from joint tuberculosis in children attest the effectiveness of nature's cure.

The most that we can hope from operation in tuberculosis of bone is the removal of a local focus which is acting injuriously in two ways: first, by interference with the functions of the bone involved; and, second, by the general infection of the system with poisonous products elaborated at the seat of disease.

Tuberculosis of bone is generally a secondary process following some deeper infection. Its removal therefore is, as it were, only palliative and leaves somewhere the primary focus untouched. This primary focus is usually situated in the lymphatic system; not uncommonly in the glands connected with the respiratory or digestive organs. Commonly, also, this primary focus of the disease is well encapsulated, so that when the active and more serious focus of the disease is removed the patient's return to health is gratifying and often long enduring.

It is interesting now to consider what degree of thoroughness we can obtain in the removal of these local tubercloses. By the amputation of a limb above the seat of disease the removal of the local focus is thoroughly accomplished. Occasionally, a localized tuberculosis can be entirely dissected out with a considerable margin of healthy tissue around it. When this can be done without bringing the tuberculous parts in contact with the healthy, of course that will constitute a thorough removal. This is rarely possible in tuberculosis of bone on account of the difficulties of the deep dissection; and almost invariably the parts about are more or less infected with the bacilli during the process of removal. In operation upon joints this is particularly true; for the infected synovial membrane is often very difficult of removal, as it dips in between the ligaments and the surrounding muscles and must be dissected away piecemeal. During this slow dissection the freshly wounded surfaces are in constant contact with the tuberculous material.

Fortunately the tissues are able to dispose of a moderate dose of the poison, so that a removal that is approximately thorough answers almost as well as if it were absolutely so. It is probable that microscopical amounts of tuberculous material which are left behind are actually destroyed and removed by the tissues. Larger portions are encapsulated and it is interesting to note that these operations, which are followed by thoroughly satisfactory healing, often leave behind them little foci of tuberculous material buried in the cicatricial tissue.

A case which well illustrates this fell under the writer's notice in 1879. The subject was a middle-aged colored woman who had been operated upon by Dr. R. M. Hodges several years before, and he made a thorough resection of the elbow-joint for tuberculosis. The healing had been satisfactory and, at the time the patient fell under the writer's observation, the false joint was entirely free from any signs of disease, healing having been accomplished several years before and having left a thoroughly useful flail-like joint.

The patient was very thin, so that examination of this joint was easy, and no sign of disease about it could be detected. She shortly died of pulmonary tuberculosis, and examination of the elbow was made. Contrary to expectation, a number of little collections of cheesy material were found in the cicatricial tissue making up the false joint. None of these showed the

¹ At a discussion of the subject of "Bone Tuberculosis" in the Surgical Section of the Suffolk District Medical Society, November 3, 1897.

slightest reaction about them and seemed to be in an entirely quiescent condition.

Accepting then the position that in these cases the surgeon's operation is necessarily incomplete and that nature must even afterwards do much to accomplish the cure, it is plain how important it is for the surgeon to do all in his power to improve the patient's general condition and to so arrange his operation as to obviate a long confinement in bed, if possible.

The removal of tuberculous material must be as thorough as it can possibly be made, the bony focus being always hunted up and entirely removed. Where possible, a considerable surrounding portion of healthy bone should be removed with it. This is usually accomplished in resections of the knee and elbow, and also in those cases of disease of the hip in which the tuberculous process is confined to the head of the femur. When, however, the pelvic bones are also implicated, this is more difficult of accomplishment.

When tuberculosis attacks bones in their continuity where it is impossible to remove considerable portions of the bone without seriously interfering with the functions of the part, surgeons usually resort to curetting for the removal of the diseased portions. As these portions are softened, they can usually be quite thoroughly removed with the sharp spoon, and the harder consistency of the surrounding healthy parts gives us considerable help in determining when the diseased portion has been thoroughly removed.² After such an operation it is not uncommon to see the surface curetted remain in a carious condition for some little time. This is due to a death of the surface of the bone bruised by the instrument. And in some cases the presence of the tuberculous process reinfects the bone and leads to a continuance of the tuberculosis.

In the carpus and tarsus this recurrence of tuberculosis is almost certain to occur. This is doubtless due in part to the comparatively ill-nourished condition of these bones. Surrounded as they are by cartilaginous joint-surfaces, their periosteal envelope, through which they receive nourishment, is comparatively scanty. It is usually well, therefore, to wholly remove any of these bones that are diseased.

In the wrist the functional result after a removal of many of the carpal bones is usually not good, but in the ankle these operations, when undertaken in the young, give excellent results.

This brings us to speak of the effect of age upon our treatment of tuberculous lesions of bone. So great is this effect that we might almost say that the success of treatment in cases of tuberculosis, other things being equal, is in inverse ratio to the age; that is, the older the patient, the worse the prognosis.

It is often a nice question of judgment whether, in a certain patient, to choose a partial operation, as the removal of the diseased tarsal bones, for instance, or to give up any attempt to save the joint and accomplish a thorough removal of the tuberculous parts by amputation.

This same question as between a partial operation and amputation also arises in cases much exhausted by the disease, and many patients will recover after an amputation, which enables them to quickly leave the bed, who would succumb to the long suppurating process following extensive resection of tuberculous parts.

² Dr. Nichols's observations just recounted to us show how important it is to remove a margin of seemingly healthy bone with the diseased.

After-Treatment.—The importance of getting patients quickly out of bed and out of doors has been dwelt upon. The local treatment should, I think, consist in giving the parts absolute rest and, if possible, applying gentle, even pressure over the whole seat of disease. In some cases when removal has been very thorough, a complete closure of the wound may be adopted; and some cases of resection will do well when the wound is wholly closed or where only a slight dependent opening is left for drainage for a short time. In other cases, where, owing to the difficulties of the operation, removal of the tuberculous parts is less complete, this opening is made not only to provide drainage but to afford access to the parts for subsequent treatment, with the hope of enabling and assisting the tissues to throw off the tuberculous process. This may be done by leaving the bony cavity widely open and packed with gauze, or, in case of a joint, by carrying through it large wicks of gauze.

We have in iodoform a substance which has, in a measure, a specific effect upon tuberculous material. It seems to act by stimulating the tissues to an adequate resistance to the tuberculous material left after operation. In a case of an extensive cavity iodoform is generally applied in the form of iodoform gauze or by the means of setons, which are very useful in the ankle- and wrist-joints. When we have considerable sinuses which it is difficult to reach in the application of gauze, iodoform oil affords a good means of applying the drug to the deeper parts and often excellent results are obtained by its use.

Even after healing has been accomplished, it is usually important to protect the parts from motion for a considerable time by the application of apparatus, as, if motion is allowed, the disease is apt to reappear.

Sometimes in connection with the tuberculous process in bone we have very large abscesses in the soft parts. When all parts of these abscesses can be reached and thoroughly curetted, it is not uncommon to obtain a complete closure of the greater part of the abscess by stitching its walls together with deep buried stitches, and, if this can be accomplished, it is the best method of bringing about a cure.

In many cases, however, this thorough curetting is not possible, notably in cases of psoas abscess.

The danger of interference where the operation cannot be thorough is that, if large portions of tuberculous material are left, the infection of the denuded parts which have been curetted rapidly takes place, and this new invasion of the freshly wounded tissue is often accompanied by considerable hectic fever, so that the patient is rather worse off instead of being improved by the attempt at thorough operation.

There is also considerable danger of infecting the parts with other organisms beside the bacilli and thereby bringing about a fever from infection by other pus organisms. In those cases, therefore, where the whole abscess cannot be thoroughly treated, it is wiser to make a small opening, large enough to allow of the discharge of the tuberculous cheesy masses which exist in these abscesses, and to then be content with the injection of iodoform oil and thorough drainage.

The gradual contraction of the walls of the abscess by reason of the cicatricial tissue surrounding it and, also, by reason of the intra-abdominal pressure in cases of psoas abscess, usually brings about a satisfactory condition of improvement, although absolute cure of one of these abscesses is extremely rare.

THE SURGICAL ASPECT OF THE PATHOLOGY OF TUBERCULOSIS OF THE BONES AND JOINTS.

BY EDWARD H. NICHOLS, M.D.,
From the Sears Pathological Laboratory of the Harvard Medical School.

THE following description of the relations to surgical operations of the lesions found in tubercular disease of the bones and joints is based chiefly upon a series of observations made during the past two and a half years. This paper is a preliminary report of those observations. Over one hundred tubercular joints, including specimens of nearly every bone and joint of the body, have been carefully examined macroscopically and histologically. Many of the joints were obtained from operations for the removal of the disease. A considerable number was obtained from autopsies, and in these cases the whole joint with portions of all of the bones entering into the articulation were obtained. A considerable number of specimens of tubercular disease of the spine has been examined. Much of the material was from the Children's Hospital, but the writer is indebted also to the surgeons of all of the general hospitals in the city for material obtained from operations. Many of the latter specimens were from adult patients.

Etiology.—The direct cause of the chronic disease of the bones and joints called "tubercular" is the tubercle bacillus. This fact has been proved by many observations. The essential lesion, the "miliary tubercle," is constantly present in the affected bones and joints, and is precisely like the miliary tubercle found in other tubercular lesions. The tubercle bacillus also is found in the affected bones, joints, adjacent soft tissues and abscess contents.¹ If bits of the affected bones, joints, soft tissues or abscess contents are inoculated into susceptible animals, those animals invariably die of general tuberculosis. If tubercular material be injected into the joints of animals, those joints are destroyed by a chronic disease which has the gross and microscopic appearance of the so-called "tubercular" human joints.

Predisposing Causes.—Congenital tubercular disease of the bones and joints is not proved, but a few reported cases make it seem possible that such cases may occur. Injuries of moderate severity favor the development of tubercular joint disease, while severe injuries are seldom followed by such disease. This probably is because slight injuries cause an inflammatory exudation in which the tubercle bacillus may find conditions favorable for its development, while in severe injuries it is possible that the process of repair is so active that the bacillus is destroyed, even if it obtains entrance into the injured tissues. Sprains of joints are particularly liable to be followed by tubercular disease.

Entrance.—The tubercle bacillus obtains entrance into the body as in any other tubercular diseases, through the lungs, intestines, or, rarely, the blood. In most cases of tubercular bone or joint disease seen at autopsy other older tubercular foci are found, usually

enlarged and caseous bronchial or mesenteric lymph glands, although sometimes the joint lesion is the only evidence of tuberculosis that is found.

Minute Anatomy.—The tubercle bacillus enters the body and causes a proliferation of certain cells. This new formation is called a miliary tubercle. The miliary tubercle contains no blood-vessels, and the centre soon becomes necrotic and caseous. In bone, when visible to the naked eye, the tubercles appear as small circular areas, with a yellow caseous centre, surrounded by a purplish-red zone of granulation tissue. Similar secondary tubercles appear about the original lesion, due to dispersion of the bacilli. By the fusion of adjacent tubercles, more or less extensive irregular areas of yellow caseation and softening are formed, surrounded in turn by other and more recent miliary tubercles.

Anatomy in the Bones.—Tuberculosis of bone usually starts in the epiphysis of the affected bones, while osteomyelitis begins generally in the shaft. This fact is of value in differential diagnosis. Miliary tubercles form in the manner just described. The adjacent tubercles fuse and a yellow cheesy mass is formed, surrounded by miliary tubercles. About the tubercles there is an absorption of the supporting beams of bone. In the cheesy mass may be bits of friable necrotic bone. This cheesy mass softens, so that at length an irregular cavity is formed, surrounded by single and fusing tubercles. These tubercles extend for a considerable distance beyond the visibly diseased area, so that in operations upon tubercular bone it is necessary to remove tissue far beyond the obvious seat of the disease in order to remove all of the affected tissue.

Sometimes there is thickening instead of absorption of the supporting beams of the bone, while between the beams there is caseous tubercular tissue. Thus a large mass of bone may become necrotic while retaining its shape, so that a "sequestrum" is formed.

Sometimes in the shorter long bones the marrow and shaft are destroyed, while the periosteum continues to produce cortical bone. Thus the diameter of the bone increases, while the centre is entirely tubercular. In this way a "spina ventosa" is formed.

Anatomy in the Joints.—Most text-books state that tubercular disease of the joints may begin primarily in the synovia, or may be secondary to a tubercular focus in the bones of the joint. The writer has examined over one hundred tubercular joints during the past two and a half years, and has never seen a case of primary tubercular disease of the synovia. Specimens of nearly every joint in the body have been seen, in which it was obvious that the primary lesion was in the adjacent epiphysis. The process in the bone was always more extensive, and caseation was more marked than in the joints. Two cases simulated primary tubercular disease of the synovia, for when those joints were opened there was a general miliary tuberculosis of the synovia, with no visible connection with disease in the bones, but when the bones were sawed open an extensive area of caseation was found in them. Primary tubercular synovitis may occur, but it must be exceedingly uncommon. No claim of the existence of such disease is of value unless every bone entering into the articulation is opened and examined to a considerable depth. Since tubercular disease of the synovia is generally, perhaps always, secondary to tubercular disease of adjacent bone, the removal of tubercular synovia, as recommended by certain writers, is harmful, for the

¹ The detection of the bacillus in the diseased soft tissues is comparatively easy, but the detection of the bacillus in diseased bone is difficult, and frequently impossible. The writer believes that this difficulty is due to the fact that bone, to be examined microscopically, must first be decalcified in dilute nitric acid. The prolonged soaking of the bony tissues in dilute nitric acid to remove the lime salts in some way interferes with the staining reaction of the tubercle bacillus. This has been demonstrated upon soft tissues which were known to contain the tubercle bacillus in large numbers. If such specimens were soaked in five-per-cent. nitric acid for more than two days it was impossible to stain the bacilli.

original focus of the disease of the bone is untouched, and the danger of general tubercular infection through fresh wounds is increased.

The disease of the joints begins generally, if not always, in the epiphysis of the adjacent bone. By the formation, extension and fusion of tubercles it extends toward the joint. Finally it breaks into the joint at some point, frequently at the site of attachment of some ligament, sometimes by direct perforation of the cartilage. The tubercle bacilli are set free in the joint and are diffused throughout the synovial fluid. Circumscribed miliary tubercles appear upon the surface of the synovia. These tubercles fuse and form irregular tubercular ulcers of varying sizes. The joint is filled with a fluid varying from serous to purulent. Tubercular granulations extend with a thin advancing edge from the synovia over the surface of the cartilage. Beneath this granulation tissue the cartilage is destroyed and the articular surface is eroded and pitted. Large masses of cartilage may be separated from the bone, so that the head of the bone is partially destroyed, and subluxations may occur.

Cold Abscess.—The tubercular process is at first confined to the bones and joints. By extension of the tubercles the process may involve the adjacent soft parts. By fusion and caseation of adjoining tubercles large areas of caseous softening or "cold abscesses" may be formed in the periarticular soft tissues. The contents and walls of these abscesses differ from those of ordinary infectious abscesses. They contain no pyogenic cocci unless secondarily affected. They do contain serum, much caseous material, perhaps friable bits of bone, and numerous leucocytes, of which many are necrotic. Sometimes the tubercle bacilli may be found microscopically, but, if they cannot be demonstrated, inoculation of the contents of such abscesses into guinea-pigs invariably produces general tuberculosis in these animals. This fact may be of value in making a differential diagnosis. The wall of the abscess consists of tubercular and not of granulation tissue. Hence the partial removal of the lining, or "pyogenic membrane," of tubercular abscesses is harmful, for generally only a part of the tubercular material can be reached, and the partial removal opens blood-vessels and increases the danger of general tubercular infection. These tubercular abscesses extend, not necessarily downward, in the line of least resistance, but by extension of the tubercular process. Such an abscess may open into the hollow viscera, or upon the surface of the body through sinuses whose walls are tubercular; rarely into the large blood-vessels. Under the latter circumstance sudden fatal hemorrhage may result. Small abscesses may be absorbed and replaced by fibrous tissue; larger ones may remain quiescent for years, or their contents may become calcified.

Repair.—The tubercular process may be self-limited, and repair may be brought about by the formation of fibrous tissue, which replaces or partly encapsulates the tubercular tissue. If this fibrous tissue is formed between adjacent joint-surfaces, fibrous ankylosis results; but such fibrous tissue may become calcified and converted into true bone, producing bony ankylosis. Often caseous tubercular masses are included within the fibrous tissue, showing that the repair is not complete. This fact explains the "lighting up" of tubercular joints supposed to be cured.

Tuberculosis of the Spine.—In the spine the pro-

cess is modified by certain anatomical peculiarities. The process begins generally in the anterior part of the body of a vertebra, but never in the intervertebral disc. The disease appears to extend from one vertebral body to another along the fibrous tissue in front of the spinal column. As the tubercular process extends the bodies soften and can no longer sustain weight, so that the upper and lower surfaces of a body are pressed together, or a comparatively sound body crushes into a softened one. This produces a projection of the spine, or a "knuckle," posteriorly, and a concavity anteriorly. If the process affects the laminae there may be a lateral bowing. The intervertebral discs may be destroyed if the disease in adjacent bodies is extensive.

Spinal Abscess.—No spinal abscess may form, but in most cases of Pott's disease seen at autopsy an abscess is found, although it may be small, high up, and unsuspected during life. If the abscess is high up it may press upon the trachea or the recurrent laryngeal nerve and cause dangerous obstructive symptoms. The abscess generally descends and appears in the iliac, lumbar or femoral region.

Knuckle.—The shape of the knuckle depends upon the activity of the process; if the process is active the angle is acute, but if healing has begun the angle is rounded.

Pott's Paralysis.—Complete paraplegia may occur during the course of tubercular disease of the spine. Mere angular deformity can never diminish the calibre of the bony canal sufficiently to produce pressure upon the cord. About one case in fifty of paraplegia is due to direct pressure of a projecting fragment of bone upon the cord. Generally paraplegia is due to a tubercular peripachymeningitis produced by extension of the tubercular process from the bodies or ¹³vertebrae. The pressure of this tubercular tissue upon the cord is sufficient to cause the paralytic symptoms. Sometimes this pressure is sufficient to cause a complete degeneration of the cord.

SUMMARY.

Many observations prove that tubercular disease of the bones and joints is caused by the tubercle bacillus. Injuries of moderate severity favor the production of the disease.

In the bones the disease begins in the epiphysis, and is more extensive than appears on gross examination. Hence in operations for removal of the disease a considerable margin of apparently healthy bone must be removed.

Tuberculosis of the joints is generally, if not always, secondary to tubercular disease in the epiphysis of an adjacent bone.

Abscess formation is due to extension of the tubercular process to the soft parts. The contents and wall of the tubercular abscess are different from those of infectious abscesses. Partial removal of the abscess wall is harmful.

Repair is caused by the formation of fibrous tissue, which replaces and partly encapsulates the tubercular tissue. Repair may be incomplete. Fibrous tissue may produce fibrous ankylosis, or the tissue may become ossified and lead to bony ankylosis.

Paraplegia in Pott's disease is rarely due to direct bony pressure. Usually the pressure is caused by tubercular peripachymeningitis. Rarely the pressure causes degeneration of the cord.

THE CONSERVATIVE TREATMENT OF TUBERCULAR JOINT-DISEASE.¹

BY E. G. BRACKETT, M.D., BOSTON.

WHEN the possibilities of the extension of tubercular processes in bone are considered, the outlook appears so doubtful that nothing but radical measures would seem to be of avail; and were it possible to always definitely remove the whole of a tubercular process, this measure would receive general support, but the difficulty of definite localization of the focus in early stages, when this should be attempted, as well as the impossibility of determining the limits of the affected tissues, prevents this measure from being one of surgical certainty. The value of conservative treatment of tubercular joint-disease cannot be estimated by theory, unless the theory be substantiated by clinical facts, as shown by the results of cases having undergone this method of treatment; and a consideration of this method of treatment must, in a brief communication, consist of simply a statement of the object to be gained, for which this method is used, the means employed to obtain this end, and an illustration of what results may occur when this has been successfully carried out. It would not be claimed that the method would always meet with success, but that success may be expected in a large majority of cases when the conditions are properly complied with, and that the cure by this means is attended with much less destruction of important structures, than when attempted by early removal, which must include much healthy bone, in order to insure complete eradication of even a small area of infection.

The conservative method depends upon the cicatrization in the tubercular process, which at some stage of the disease walls off the affected portion. It is known that if bone is placed under proper conditions it will heal, and for this it is necessary that the diseased part should be kept in a condition of physiological rest, which would vary according to the locality of the disease. The simple placing of a patient in bed as a treatment for any joint-disease, and particularly for a disease of the hip, or the spine, is not the treatment for a diseased joint, for the principle of the conservative treatment is the rigid enforcement of rest, and protection from bruising of the two joint-surfaces, adapted in its detail to each particular joint. It must be borne in mind that the freedom, which to a normal joint is physiological, becomes in a diseased one a source of actual trauma and constant irritation. For the purpose of illustration, the disease of a hip may be used as representing the type of the severe form of disease, and one difficult to treat.

The object of the treatment is to protect the diseased joint-surfaces from all such irritation as may be in its respective stage injurious, until the process of repair is complete. The injury which may come to the diseased joint may be considered as that either of mobility, giving friction of the diseased surfaces, or pressure, or, what is still more harmful, the two combined, and must be prevented by the removal of all natural use and weight-bearing of the limb. In addition to this is, however, the great intra-articular pressure, which comes from the spasm of the powerful thigh muscles, driving the head of the femur against the acetabulum. Examinations of specimens show

that the evidence of disease is usually most extensive in the upper part of the acetabulum, the place where most of this pressure would be exerted. Therefore in the thorough treatment of disease in this location there must be rest to the part by immobilization, avoidance of jar and bruising, and the removal of pressure from the muscular spasm.

These indications which are met with in a diseased joint must be treated in the most thorough manner, demanding a continuance of the utmost care for a long period of time, and may be considered under the heads of immobilization, traction, and the removal of weight.

The immobilization must be complete, not only for voluntary movement in the normal planes of motion of the joint, but also all involuntary motion must be guarded against, such as would be occasioned by the child turning and twisting, both when awake and asleep. For this reason, it is not sufficient that a child be simply placed in bed, when this method of treatment is to be used, but must be so secured, as for instance in early cases during recumbency, by the use of the frame, to which the child can be properly strapped, that all injurious motion may be prevented, and attention given to the child's wants without disturbing the rest to the joint.

The traction of the limb to overcome the pressure from the spasm of the muscles must be sufficient to prevent the unusual pressure of the head of the femur against the acetabulum, and must be constant for all such time, as the need of this part of the treatment is evident. This traction must be carried on in the line of deformity of the limb, must be continuous, both when it is applied by the weight during the recumbent and by the apparatus during the ambulatory treatment.

The necessity for the removal of pressure by weight-bearing lasts longer than either that of immobilization or traction. During the ambulatory treatment this is accomplished either by the use of crutches, while the traction splint is worn, or later by the apparatus used as a walking splint, as an ischiatic crutch, transferring the weight to the tuberosity of the ischium.

Three types of cases can be used to illustrate the results of the method of treatment when carried out carefully, and which represent not different types of disease, but cases of different grades of severity.

CASE I. Boy, six years old. At the beginning of treatment presented symptoms of pain, occasional night-cries, slight deformity, slight atrophy, limitation of motion and limp. No spasm while limb was at rest. Treatment carried out by the removal of weight, by crutches, and a high sole. This treatment continued for one year, when all signs of joint disease had subsided. Treatment was then omitted, child allowed the gradual use of the limb with no return of symptoms.

CASE II. Boy, eight years old. Early symptoms of pain, night-cries, limp, deformity, spasm, and limitation of motion. Treatment by traction in recumbency, followed by ambulatory treatment, with splint and crutches. An abscess developed later, which was opened, and discharged for some months. Treatment continued for three years. At the time of last examination, flexion in 90 degrees, abduction one-half, rotation one-third. Limb strong; patient walks with a slight limp.

CASE III. Boy, eight years old. Early symptoms of pain, spasm, night-cries, slight deformity, and

¹ Read before the Surgical Section of the Suffolk District Medical Society, November 3, 1897.

limitation of motion. Early treatment in this case was not constant. Later, child entered hospital for an abscess, which was opened. Treatment continued by recumbency for some weeks, later by ambulatory treatment, with traction, high sole and crutches. During the next three years several abscesses formed, with many remissions of symptoms of pain, with increasing deformity and spasm. At the end of five years the child had motion to nearly 90 degrees, rotation nearly normal, abduction one-half, shortening one inch. On the upper part of thigh and buttock are scars of six or seven sinuses. General condition at the time of last examination excellent.

The first two cases illustrate the abortive influence of the conservative treatment of cases carried out carefully and successfully during its early stages, in which the result of both cases was good. The third case represents one, in which, as the early treatment was not thorough, but by the later continuance of the conservative treatment, the tubercular process subsided, and cicatrization so far was carried on that the joint became a useful one, and thus illustrates the possibility of cure after the disease has become extensive, as is shown by the long continuance of the process and the many abscesses. The treatment by conservative methods, although it requires time and patience, has the advantage that the cure is obtained with the least destruction of bone. When compared with the operative treatment in this respect, it is seen that the loss of substance is much less, and the possibility of a joint mobility is greater. If the attempt is made to remove the disease by operative measures, it must be by the loss of considerable bone substance, or the thorough eradication of disease cannot be expected.

Clinical Department.

A CASE OF DISLOCATION OF THE LOWER END OF THE TIBIA FORWARDS.

BY WILLIAM H. DEVINE, M.D., SOUTH BOSTON.

THIS form of dislocation is so rare that I thought a report of a case might be interesting and instructive.

J. H., aged twenty, occupation milkman's helper, family history excellent, is a strong, vigorous adult, who has been accustomed to same work for several months. The work consists of carrying milk-cans in both hands from the team and delivering at doors. On the morning of December 17th, at 4 o'clock, he alighted from the team with cans of milk (about six quarts) in each hand; he stepped from the footboard, placing his left foot on the step of the team, and then jumped to the ground. On touching the right foot to the ground, he felt pain in the ankle and fell; he was unable to move his ankle. By the aid of his partner he hobbled to my office, a short distance.

On uncovering the leg I first noticed a large prominence over the lower end of the tibia. On examination, I found that there was a complete dislocation of this bone at the lower end. By extension of the ankle, with pressure downward on displaced bone, it was reduced without much difficulty. Side-splints were applied, and the patient removed to his home. Dr. M. F. Gavin later confirmed the diagnosis of dislocation of the tibia forwards. About a week after the accident a plaster dressing was applied; this remained for a few

weeks. In about six weeks after the injury the patient was able to resume his work, and at present the function of the joint is apparently normal.

In this case there was no fracture, there was no disturbance in the relations of the bones and joint excepting between the tibia and the astragalus, the former being pushed forwards, and of course torn away from the fibula.

E. M. Moore, in the "Reference Handbook of Medical Sciences," gives the best description of this: "This form of luxation is an exceedingly rare one, and the different cases often vary much in degree. The tibia is sometimes carried forward a short distance only, but it may, however, be carried so far that, instead of resting partially upon the astragalus, it may leave it entirely and stand upon the instep. As in lateral luxation, the fibula is apt to give way above the ankle, and the displacement is sometimes complicated with a fracture of the end of the tibia. The deformity is striking; the heel projects, the lower extremity of the tibia overhangs the instep, and the motion of the ankle is lost. The reduction is effected by flexing the leg upon the thigh, then drawing upon the foot in the line of the tibia."

Bryant's "Surgery" mentions a condition something like the case reported, but both tibia and fibula are dislocated forwards: "Sir Astley Cooper calls this, dislocation of the foot backwards. It is usually caused by the violent propulsion of the lower end of the leg-bones forwards, when the foot is fixed, and is readily recognized by the shortening of the anterior surface of the foot and the proportionate elongation of the heel, with some pointing of the toes, as well as prominence of the lower end of the tibia. At times, the fibula is fractured and the point of the bones carried forwards with the astragalus. This accident is rare, it being more common to meet with fracture of both malleoli, and displacement of the foot and broken fragments backwards."

Hamilton says: "This dislocation may be produced by a violent extension of the foot upon the leg, as, for example, when, the foot being engaged under a piece of timber, the body falls backwards to the ground; or when, the leg remaining fixed, a heavy weight descends on the front of the foot, the foot resting upon an inclined plane; by a blow on the back of the tibia, or possible even by the toes being brought violently in contact with some firm body. The fibula is generally broken on a level with the articulation, the malleolus internus also in some cases, and still more rarely a fracture occurs through the posterior margin of the articular surface of the tibia. Symptoms: The length of the foot in front of the tibia is diminished, while the projection of the heel is correspondingly increased; the toes are turned downwards, and the heel drawn upwards and fixed in this position; the end of the tibia may generally be distinctly felt in front of the astragalus; the extensor tendons of the toes are sharply defined, while the tendo-Achilles is curved forwards, and tense."

This injury can be distinguished from dislocation of the astragalus backwards; in this displacement the body of the astragalus is felt behind the ankle, and the absence of its head from normal position easily recognized.

In my case the tibia was displaced forwards; the other bones preserved their connection and relations to the foot.

The rarity of the injury, and the complete dislocation of the lower end of the tibia, and the absence of any sign of a fracture or injury to any other part of the joint, and its complete restoration of mobility are the chief features of the case.

It is easy to understand the rarity of this luxation when we consider that in order to produce it the anterior, lateral and inferior tibio-fibular ligaments must be ruptured. Any force causing this would naturally be expected to throw the fibula forward with the tibia and possibly fracture one or both bones.

Reports of Societies.

SURGICAL SECTION OF THE SUFFOLK DISTRICT MEDICAL SOCIETY.

PAUL THORNDIKE, M.D., SECRETARY.

REGULAR Meeting, Wednesday, November 3, 1897, Dr. H. L. BURRELL in the chair.

ORAL COMMUNICATIONS.

MR. McGRATH: On invitation of Dr. Goldthwait, I have brought specimens of bone which are the upper extremities of a case which came to autopsy at the Long Island Hospital last summer. These are the arms of an old woman who had been at the hospital a number of years on account of a disability resulting from the deformity of the arms and from chronic rheumatism. There is very little known of her history. She was probably at least sixty years old. The only point of interest that was determined from her story is that at the age of three, during an epidemic of variola, she was vaccinated with virus taken from another child, and following that she had small-pox and, as she expressed it, blood poisoning. After that time her hands and arms did not grow. She finally succumbed, in August last, to an attack of diarrhea. On examination there is in the right arm a complete ankylosis at the elbow-joint. I might mention first the fact that there was very evident disparity in the length of the humerus of the right and left sides, the right being about three centimetres longer than the left. The position of the bones is extreme inward rotation and supination. The ankylosis is complete. The bones are considerably deformed; the ulna is bent posteriorly. The left arm shows with respect to the humerus a bowing inward of the humerus and a partial ankylosis of the left elbow-joint. Whereas on the right the forearm is very much shortened, on the left it is nearly normal, but the humerus on that side is shortened so that the combined length on the two sides is about the same. It seems as though there was a balancing on the left, the forearm being longer than the right, and on the right the upper arm longer than the left. The position of the bones of the left arm is not unlike that on the right side, the forearm being in a position of extreme rotation and midway between supination and pronation.

DR. S. E. PALMER: This specimen is from a woman fifty-three years old who came to the dispensary last spring, and on examination I felt what I thought was a fibroid—a perfectly solid mass pressing down in the vaginal vault. It seemed a part of the uterus. She had practically no symptoms except those of some slight pressure on the bladder and rectum which were

readily relieved, and I encouraged her, thinking it was a fibroid retrogressing after the menopause, to have nothing done and gave general treatment. She came back this fall, thought she felt worse and complained of symptoms of pressure on the bladder and rectum. When I opened the abdomen this hard mass came easily into view. There were very few adhesions to the sides of the pelvis; when these were separated, this thing fell off from the Fallopian tube—nothing to tie off, nothing to sew up. It was attached to the Fallopian tube by the merest thread. She had had the menopause about eight years before. She had no children. I thought it was an infantile uterus. The tumor is filled with hair and there are two teeth inside. The interesting points were the lack of symptoms and the calcareous degeneration of the walls.

DR. J. E. GOLDTHWAIT showed some drawings illustrating deformities of the spine resulting from osteo-arthritis.

THE TREATMENT OF TUBERCULAR DISEASE OF BONES.

DR. E. H. NICHOLS considered "The Pathology of the Disease in its Relation to Treatment."¹

DR. A. T. CABOT's subject was "The Operative Treatment."²

DR. E. G. BRACKETT spoke of "The Non-operative Treatment."³

DR. GOLDTHWAIT: My only suggestion would be to emphasize what Dr. Cabot has already called attention to, the difference in the treatment that is necessary in children and adults.

In children conservative treatment undoubtedly gives the best results, but in adults, in a large number of cases, operative interference is necessary. If the joint trouble can be checked without operation, the period necessary for the protection of the joint is shorter in adults than in children, as the bone in the younger cases is softer and more liable to injury.

DR. BURRELL: There are one or two questions I should like to ask Dr. Nichols: First, is it possible where there is tuberculosis of the head of the femur to thoroughly eradicate all of the diseased tissues? Second, is there any way by which diseased tissues may be differentiated from normal tissues macroscopically?

DR. NICHOLS: I have not seen enough joints where I could see both the head of the femur and the pelvis to be sure about the disease. I am inclined to think the disease often starts in the pelvis rather than in the head of the bone because after a number of excisions there has been in the head of the bone very little tubercular disease in cases where there have been abscesses and a very extensive tubercular process besides; and from seeing the other joints I am inclined to think that the original focus was in the acetabulum. In such a case I think it would not be possible to get it all out. I remember one knee where the patient came to the out-patient department with acute symptoms lasting about a week, where it was subsequently found that the only tubercular local focus was a very small area, not so large as a penny, at the junction of the epiphysis and shaft in the tibia. She afterwards died of general miliary tuberculosis. If you had known where the process was in that case you probably could not have gotten all of it out.

¹ See page 81 of the Journal.

² See page 79 of the Journal.

³ See page 83 of the Journal.

DR. BURRELL: Put it another way. Is it possible, in an operation, to tell macroscopically the limits of the disease?

DR. NICHOLS: Surely not at the time of operation, and I think oftentimes not even after the bone has been dried a considerable time.

DR. BURRELL: When and where should the surgeon stop?

DR. NICHOLS: The tubercular process is oftentimes one-half inch beyond what you can see, and I don't know how much farther.

MASSACHUSETTS MEDICO-PSYCHOLOGICAL SOCIETY.

H. C. BALDWIN, M.D., SECRETARY.

REGULAR Meeting Thursday, November 18, 1897, DR. E. COWLES in the chair.

DR. J. W. COURTNEY read a paper entitled,

A CLINICAL AND PATHOLOGICAL REPORT OF A CASE OF FRACTURE OF THE SPINE IN THE CERVICAL REGION, WITH SOME STATISTICS ON FRACTURES IN THIS REGION.¹

DR. BULLARD: I have been very much interested in the paper of Dr. Courtney, and I think he has brought forward very clearly a good many of the conditions we find in fractures of the cord. I have paid special attention to that subject for some years, and have seen at the City Hospital 15 or 20 cases of laminectomy. I may say that in no one of those cases have we found any pressure of the bones upon the cord; on the contrary, the cord has been perfectly free, so far as could be told, in every case. I have long believed that in most of these cases of fracture of the spine followed by the ordinary symptoms of paraplegia and paralysis of the bladder and rectum we had rather a crush of the cord than any other injury of the cord, and that the crush was produced by the sudden driving forward or backward of a vertebra which then slipped back into place, because in most of these cases no dislocation was found. The only autopsy which I remember at the City Hospital, in addition to this one, was made a year ago, and in that case there was a fracture of the mid-dorsal region, and the cord was found to be crushed and disintegrated for a space of about four inches.

In regard to the question of the total loss of knee-jerk in lesions in the cervical or upper dorsal region I am not able to form a definite opinion. It is generally stated, and the mass of neurological testimony seems to be, that it implies a total transverse lesion. I have among my records one case which lived three months after a fracture in the mid-dorsal region, with total loss of knee-jerks. In this case there was nearly total severance of the cord. I don't think that it is proved that total loss of knee-jerks in a high spinal fracture necessarily implies a fatal termination.

In favor of the operation of laminectomy it might be stated that the operation when done under proper conditions and by skilful surgeons is not a very dangerous one, and that there is always a possibility that there may be a continued pressure on the cord from bone or from hemorrhage, and that the results which are obtained when the patients are not operated upon are not so favorable but that we should be led

to do something for improvement. I think there is little doubt that in most of these cases we have a destruction of the cord.

DR. E. W. TAYLOR: At Dr. Courtney's suggestion and with his permission I thought it would be of interest to show a specimen taken from one of the cases at the Massachusetts Hospital, not long since. It was a good deal talked about in the papers, and it is of considerable interest on account of the apparently slight character of the lesion and yet the completeness of the transverse destruction. This was the case of the trapeze performer at Keith's theatre, a young English woman who had recently come to this country and in her first performance fell in attempting to do some difficult acrobatic feat and struck in such a way in the net that her back was broken, to use the common expression. She went to the Massachusetts Hospital and was operated upon; death resulted, whether assisted by the operation or not must remain an open question. One of the surgeons at a clinical meeting expressed the hope and belief that in all probability there would be a favorable result from the laminectomy. I believe there have been none at the Massachusetts Hospital in the last few years.

This lesion is of interest from various points of view. In the first place, it is in the cervical enlargement, and is insignificant in external appearance. There is no evidence whatsoever of hemorrhage having existed extra- or intra-durally, and that, so far as I have been able to observe in a number of cords I have had the opportunity of examining, is usually the case. Hemorrhage, as a possible excuse for interference, seems to play a comparatively small part. You see at the upper portion a faintly bluish area which is the only evidence of disturbance on this posterior aspect of the cord. Unquestionably, however, the symptoms pointed to the fact that there was a transverse lesion; and from this, associated probably with the shock of the operation, the patient died. It is below the emergence of the phrenic nerve, so that there was no absolute reason for immediate death. The cord has been hardened in formalin and the consistency of the normal and crushed portion is much the same. Palpation at the time of operation could, however, have conveyed little information of the true state of affairs. On section there shows at the point of lesion very much what is, I believe, usually the case, that is, a hemorrhage or softening in the cord itself. The lesions here are very interesting. At the point of the greatest destruction is a complete disintegration of the cord. Above that, at a distance of one and a half inches, is simply a small hemorrhage of the type van Gieson has described, a tubular hemorrhage lying in the posterior column. Below that point, at an equal distance, there is no visible lesion macroscopically.

A similar condition I have noticed in another case. It was operated upon by Dr. Harrington, and showed at the operation absolutely no extra-dural hemorrhage and no hemorrhage within the dura. The post-mortem examination showed almost complete disintegration of the gray matter of the cord with a great deal of hemorrhage in its substance. It appears that in these lesions, whether the result of fracture or dislocation, whether or not the bone springs back into place, the chief damage done is in the cord itself, and naturally that makes the outlook for operative interference very much less hopeful than if the hemorrhage were outside the cord.

¹ See No. 2, p. 29, of the present volume of the Journal (January 12, 1898).

DR. KNAPP: I remember, a number of years ago when Dr. Burrell was studying a large number of specimens of fractured vertebræ from the Warren Museum, he pointed out to me how in some cases the spinal canal was not at all affected, while in others the fracture must inevitably have caused a complete crush of the cord, and in few cases was there probability of simple pressure. Many of these cases I think show the mechanism which Dr. Courtney has spoken of—the sudden movement of the vertebræ when they break destroys the cord, and then the fragments spring back into place, leaving apparently a patent canal. My own experience with laminectomy would lead me to agree with Dr. Bullard, that the chances for benefit in case of probable fracture are extremely slight. I have as yet failed to see any case where laminectomy did any good either in the cases where there was total paraplegia or where the symptoms were such as to show that there was only partial impairment of the cord's functions.

The question of the loss of knee-jerk is one of distinct importance, but it seems to me as yet it is by no means a settled question. Kocher, in his recent work on injuries of the spinal column, accepts Bastian's theory, that in cases of distinct transverse lesion of the cord we get loss of knee-jerk; and from the cases as they have been analyzed I think we may accept that statement fully. I think there is no case which will bear close criticism where there has been a complete transverse lesion of the cord in which the knee-jerk has been retained; but it is still a question, I think, whether we can argue the case the other way round, whether finding a case presenting paraplegia and anesthesia without a knee-jerk we can say that there must be a transverse lesion of the cord.

I remember a case not long since which I will give for what it is worth, which I was asked to see by one of the surgeons at the City Hospital. I have forgotten the precise location of the lesion, but it was either in the lower cervical or upper dorsal region. There were the ordinary symptoms of paraplegia and anesthesia pointing to a definite level in the cord with complete loss of knee-jerk. I was asked with reference to a laminectomy. I advised against it. From the loss of knee-jerk I thought the chances were that there was a complete transverse lesion of the cord. With a certain amount of the *furor secandi* of the surgeons they urged the question of laminectomy very strongly, and wanted to know what harm it would do. They seemed to think it was a trivial matter to operate. I said I did not think it would do any material harm, but I was equally positive it would do no good. They said, "Might not there be one chance in several thousand it would do good?" I said, "If you want to take that chance, well and good." They did, and the patient died a few days later. They found no pressure upon the cord, no dural hemorrhage. The cord in that region, so far as it could be determined by the macroscopical appearances and by gentle palpation, seemed perfectly normal. Unfortunately no autopsy was made. There was certainly nothing in the appearance of the cord at the site where the lesion occurred that indicated anything in the least out of the way.

Dr. Bullard speaks of a case which to his knowledge lived some two months where there was complete loss of knee-jerk after probable transverse lesion. Some years ago I saw a very interesting case where there was a transverse lesion concerning which there can be

no doubt. A little darkey of eight or ten was playing in the street and was struck by an electric car in the back; he was carried to the Massachusetts Hospital, where fracture was found. They did laminectomy, removed the various fragments of bone, and saw somewhere in the upper dorsal region, about the third or fourth dorsal, the cord absolutely cut in two, and they put it back again as well as they could; but there was no question about the transverse lesion because the two ends of the cord were clearly exposed to view. I saw the boy a considerable number of months afterward. The case came up for trial, and I was asked by the lawyer to see him, and that must have been in all probability a year after the accident. The boy was at the Home for Incurables, in Dorchester, lying on his belly. The skin of his legs was smooth and shiny. He had had bed-sores all over him, but owing to skilful nursing they had healed up. Of course, it goes without saying that there was an absolute paralysis, absolute anesthesia, absolute loss of power over bladder and rectum. The arms, I think, were entirely free. They had him on a sort of frame, so that they could turn him over sometimes on his back, sometimes on his belly. He used his arms in playing, would stick his head up like a turtle, was bright as a dollar. The case was tried and settled; and something over a year later Dr. Osgood told me the boy was still at the Home, bright and happy; so that a complete transverse lesion of the cord in the upper dorsal region is not necessarily fatal.

Kocher, in his recent work, speaking of the complete transverse lesions in the cervical region points out clearly that anything above the fourth cervical must necessarily be speedily fatal, owing to the fact that both phrenic nerves must be paralyzed; below that a complete lesion will usually prove fatal in about five days.

Dr. Courtney's case brings up another point of distinct interest with reference to the distribution of the anesthesia. It is a somewhat singular thing that the anesthetics in these cases of injury to the cervical or lumbar region have, so far as I have had the opportunity of studying them, always followed the so-called spinal types which were described originally by Thorburn and from the physiological side by Sherrington and others, and have since been worked out by Starr, Head and others; and this case of Dr. Courtney's from his description is probably of the same type. That distribution seems to be found whether we are dealing with a complete transverse lesion, as in Dr. Courtney's case, or in the cases where there is injury of the more external portions of the cord or of the spinal roots.

I will pass around these two rough diagrams of distribution of the anesthesia in two cases of injury, one a case of unilateral dislocation and the other a case of fracture of one of the cervical vertebræ with slight dislocation and not any serious impairment of the cord. Curiously enough, on the other hand, in the cases of disease of the cord arising from other causes—such as syringo-myelia, tabes and some of the forms of myelitis—that distribution of the anesthesia is by no means so frequent; and the explanation of it is certainly of interest, although no satisfactory explanation has yet been brought forward. Chipault some time ago advanced the theory that where we had this so-called spinal distribution, as shown by the diagrams of Thorburn and others, we had to do with an injury of the spinal roots, and where we had a distribution more segmental we had to do with a lesion of the central

gray matter of the cord. That seems to be distinctly untenable, but yet no theory has been advanced to explain these curious variations in the distribution of the anesthesia in spinal disease.

DR. WALTON: My experience coincides fully with that of Dr. Bullard and Dr. Knapp with regard to the inefficacy of operation in these cases. I have not yet seen a case, either under operation or at the autopsy table, in which the bones continued to press on the cord; and even if the bones were found so pressing, I should hardly expect relief from operation after the cord had been once crushed. The case of this unfortunate young woman is a very fair example. I was called to the hospital the evening on which the accident occurred to give an opinion with regard to operation. She was perfectly bright, and able to tell the story of the fall. She dove head first from a height and turned a somersault into the net, but landed so as to bend her neck instead of landing on the back. She had the symptoms which have been so well described to-night—loss of knee-jerk, if I remember aright, complete loss of motion in the legs, and partial in the arms, with complete numbness up to a certain point on the trunk. There was obviously complete crush of the cord. There seemed to me no hope from operation. The pressure from the bones had probably been relieved, or if it had not, the damage was done and the cord disintegrated. I advised against operation, though stating it was a hopeless case, and operation was justifiable if the surgeon desired it. When I am asked, "Is there not one chance in ten thousand?" I generally answer "Yes"; but there is also one chance in ten thousand that the case will get well spontaneously, and the operation do harm rather than good. I have never yet seen a case, however, in which operation did any harm, and in this case the operation probably had no effect whatever on the cord. The crushing was done at the time the neck was bent.

With regard to Dr. Putnam's question as to secondary degeneration, the operation was done the next morning, if I remember rightly, and she died within, I think, three days, too soon I suppose for any secondary degeneration to be evident. The operation was decided on by the surgeon, on the basis that it probably would not do any harm, might possibly do good, and that the case was hopeless without it.

I have seen one or two rather curious coincidences in connection with these cases. One was that of two young men in an open carriage, the seat of which was loose. The horse starting up suddenly, the seat went off backwards, both young men fell, the neck of each was broken, and both died. Another curious experience was that of a man brought into the Massachusetts General Hospital, with the neck in the characteristic position of unilateral dislocation, one ear lowered and the head rotated. The whole neck was stiff, so that it was considered there might be a dislocation rather than a fracture; but the post-mortem showed that the cause of the rigidity was an old ankylosis of all the vertebræ in the cervical region, the spinal column being broken across just as if it were a pipe-stem without any reference to anatomical landmarks, broken into two pieces sharply and the cord crushed, jammed and stretched. This reminds me of the importance of going into the previous history in such cases. It is sometimes difficult to get an accurate history. Perhaps in this case the rigidity had come on so gradually that his friends would not have specially noticed it. In case of cervi-

cal Pott's disease in children, the head is sometimes in the characteristic position of unilateral dislocation; I suppose because in the dorsal region the configuration of the chest decides the antero-lateral curvature, whereas in the neck the direction of least resistance is as likely to be lateral. I remember two such cases with history of recent trauma in each; all inquiry failed to elicit any history of deviation of the neck prior to the accident, and dislocation was seriously considered; but the character of each case and the constitutional condition of the patient caused suspicion of Pott's disease, and more careful inquiry elicited the fact that they did have some irregularity before. Neither of these cases were complicated by lawsuit.

Another point of interest to me is the fact that in this case of Dr. Courtney's there was practically no deviation or irregularity to be felt in the spinous processes. I understood Dr. Courtney thought possibly there was slight lateral motion, but that another observer failed to find it. I remember a case in which the line of anesthesia did not extend as far as in this case, and it was supposed that the fracture was in the upper dorsal region. The most careful examination failed to disclose any irregularity whatever in the spinous processes in the neck or elsewhere, excepting, curiously enough, that the normal irregularity between the third and fourth dorsal spines was considered pathological. I refer to the fact that the fourth dorsal spinous process dives down more vertically than the preceding ones (which are comparatively horizontal); the space between the third and fourth spinous processes is then normally perhaps one and a fourth inches as opposed to one inch or less between the second and third. Fortunately the case was not operated on, or else possibly the mistake would have been made of operating at that point. The post-mortem examination showed that the break was in the lower cervical region and that the bones were fractured, but held in position, apparently by the ligamentum nuchæ.

With regard to the possibility of spontaneous recovery, I have here the picture of a man who fell ninety-one feet from the top of a mast, catching the leg in the rigging on the way down and dislocating the hip. He then struck the deck and injured the back. He was nine days without medical attendance. There was incontinence of urine, but the rest of the history is unsatisfactory, though he states there was no trouble with the bowels, and no loss of sexual power. In two and a half months he got about on crutches. The accident happened twenty-three years ago. There is now a large prominence to the left of the median line in the lumbar region, about which opinions differ as to whether callus takes part in its formation, or whether it is the remains of other hyperplastic processes not involving the bony structure. The outlines of this prominence, together with the history, tend to throw out simple lateral curvature, although there was a lateral compensatory curve in the upper dorsal region, causing the left shoulder to droop. The fall was certainly sufficient to have broken the back, but the convalescence was rather rapid for fracture. The fracture, if there were one, probably involved only the caudæ equina, which would naturally escape the serious results following crush of the spinal cord. The man when I saw him was quite active, and even jumped on a street-car in motion.

DR. PUTNAM: I am very much interested in this ex-

cellent paper and the discussion that it has given rise to. I will speak of one point. As regards the question of the degeneration of the posterior columns, I would like to ask whether there was upward degeneration of the anterior tract, motor tract?

DR. THOMAS: Yes; there was a little degeneration above the lesion in both posterior and lateral tracts, but not as marked as below the lesion in either tract. It was greater in the posterior tracts below the lesion than above. In the lateral tracts it was also greater below the lesion than above, as one would expect.

DR. PUTNAM: I should like to suggest, as a partial explanation, that the vitality of the posterior tracts seems to be very much less than that of the antero-lateral tracts, or, at any rate, for some reason they are more prone to become diseased. In the great majority of cases of toxic disease of the spinal cord, like those that occur in malnutrition and pernicious anemia, and from ergot poisoning, it is the posterior tracts that suffer the most. It seems to me that this principle of greater vulnerability is one which is not applied quite as often as it deserves in neural pathology.

DR. KNAPP: One word about the knee-jerks. Some years ago I reported a number of cases where there was temporarily a loss of knee-jerk in cases of distinctly cerebral type, where it seemed to me probable that the cerebral irritation had produced the loss of knee-jerk.

DR. PUTNAM: I think we should almost all of us be inclined to bear out that opinion.

DR. BULLARD: I have a case in which it (loss of knee-jerk in severe injury) did not occur. A patient with fracture of the spine was admitted to the hospital, June 13, 1894. I saw the patient immediately. The knee-jerk was present on the right, and probably on the left, though not marked. She died in three days. There was no autopsy. It was a very severe lesion, and I think there is no doubt it was fracture of the spine, but no absence of knee-jerk.

DR. WALTON: Dr. Bullard's experience would not contradict the fact that the knee-jerk is generally wanting in such cases. My experience would lead me to look for its absence in at least the majority of cases.

DR. MEYER: How long after death was the autopsy made?

DR. COURTNEY: Four days.

DR. MEYER: That, of course, will complicate the question of findings with the Marchi stain considerably, and it also may explain to some extent why the lower parts of the cord were more affected than the upper ones. Those which are next to the intestinal canal are probably more affected than the ones farther away from the principal foci of putrefaction. This is all the more probable since the Marchi specimen shows the black dots without any typically systemic distribution all through the white matter. I should like to say with regard to the degeneration of the posterior columns that that question is not at all solved, what the relation is between the posterior tract of Flechsig and the so-called comma tract. I may mention a case which Dr. Wright of the Massachusetts General Hospital gave me for examination. I am sorry he is not here to report it himself. The conditions were these, if I remember correctly. I am not sure whether it was a case of simple compression or of fracture; the patient lived four months, and there was absolute compression of the cord in the lower cervical region, most probably between the eighth cervical root and the first

dorsal, and there was not a solitary fibre left within the compressed area. The comma tract was degenerated; the tract of Flechsig was not degenerated. It seems from the digest of the question that Bruce made, that the tracts have to be regarded as of intra-spinal origin rather than the continuation of dorsal roots. It is rather interesting, especially with regard to the case of Hoch, that this case of Dr. Wright's did not show any degeneration of the Flechsig area.

I should further like to say something about the absence of knee-jerk. Some weeks ago I had the opportunity, through the kindness of Dr. Baker of Worcester, to make an autopsy on a case of cerebellar tumor I had seen in consultation before death. The patient had, among the typical symptoms, absence of knee-jerk; and we made the diagnosis of tumor of the cerebellum, which proved to be correct. For the sake of study of the secondary degeneration I advised removal of the spinal cord, and found infiltration of all the spinal ganglia in the lumbar region, and infiltration of the whole lumbar cord and cauda equina; so that the absence of knee-jerk could have a double cause. Of course, the primary idea was that it was an absence of knee-jerk due to cerebellar tumor; and if it had not been for the hunting for secondary degenerations, we would not have found the lesion of the reflex segment. That possibility would corroborate Oppenheim's advice to examine the whole of the nervous system. Further, I should like to say that in future autopsies it would be exceedingly desirable that not only the cord should be examined, but also the Deiter's nucleus and the cerebellum, since with the Nissl method we can show changes in the cells the fibres of which have been destroyed within four, five or six days after injury and the question of the relation of the Deiter's nucleus could at last be attacked. Also it is perfectly astonishing that with the frequency of such lesions, we have, to my knowledge, only two or three cases in which Gower's tract has been followed to its termination.

With regard to the fatal character of these lesions, it is very interesting that animals stand removal of the spinal cord, with proper care, to such an extent. Golz and Ewald have removed the cords of dogs, almost the entire cord, and kept the animals alive; and it seems to me with the smallness of the lesion we are not dealing so much with the consequence of disturbance of tracts as shock, that it is to say, a general disturbance. This is of importance for the question of operation.

DR. KINGMAN: In the Rhode Island Hospital we have had four cases. One of them died, two were not relieved, and one improved. The one improved can now walk, and comes to the doctor's office. We favor the operation.

DR. BALDWIN: I have been very much interested in the subject of this paper. I have seen in the past two years five cases of fracture of the spine in the cervical region at the level of the sixth and seventh roots. One of the cases was a conductor pushed off his car. He lived for eleven days. There was an autopsy, and no pressure was found on the cord. The cord at the level of the sixth cervical root was disintegrated. The other cases died within forty-eight hours. One case, Dr. Walton will remember, was a case where it was a question of operation, and the advice was against operation. The patient died within twenty-four or forty-eight hours. I have seen two

cases, one a stab in the neck in the cervical region, and the other a hemorrhage of the cord on one side at the level of the eleventh cervical root, the result of a fall. There was complete absence of motion on one side and of sensation on the other, and the knee-jerk was absent completely on one side but came back within a few weeks. These two cases left the hospital practically well.

DR. THOMAS: At the City Hospital since the refrigerating apparatus has been used we have done autopsies four days and more after death and found no degeneration of the nerves. I don't think these were putrefactive changes, for although they were diffuse, they were more marked in some parts than others.

DR. KNAPP: I don't know whether Dr. Prince thought that I meant from what I said that laminectomy was not a serious operation. I certainly regard it as such in spite of some of our surgical brethren. I recall one case of laminectomy in a man sound and healthy, which was done for the purpose of section of the posterior roots—Abbey's operation for obstinate amputation neuralgia—and the man died on the table.

In this case of Dr. Courtney's, the changes in the anterior cells have suggested to me an explanation of certain cases which I suppose we have all seen, cases where the probable diagnosis is transverse myelitis with more or less complete paraplegia, and anesthesia up to a certain level of the cord with the customary bladder symptoms. In a certain number of these cases I have found on electrical examination that there was little or no faradic reaction of the paralyzed muscles. I never fully understood why this was, on the theory that we had to do with ordinary transverse myelitis, but the changes which Dr. Thomas has found in the anterior horns all the way down the cord would perhaps suggest that in some cases changes may occur in the anterior horns as result of the transverse myelitis and thus lead to loss of faradic reaction.

DR. WALTON: I hope I was not understood as intimating that laminectomy was a trivial operation. I think I did say I had never seen it do any harm. I should not want to go on record, however, as regarding it lightly. At the same time, I think it is far less serious than operations on the brain. The operation of laminectomy, even when followed by penetration of the dura mater, certainly does not compare in danger with the corresponding operation on the brain.

DR. COURTNEY: In conclusion, I should like to speak of two points: First, in connection with the surgery of these cases it is important to remember that we are dealing with diaphragmatic breathing, and that, consequently, the patient is seriously threatened by the ether before the knife touches him. Secondly, the results of experimental cutting of the cord in animals are in nowise analogous to those from the crush caused by fracture. Where the cord has been carefully divided with the knife it has been found that the reflexes were only temporarily abolished, a fact which seems to explain their return in Dr. Baldwin's case. The conclusion is that it requires a violent crushing to do the mischief.

DR. WEBBER: I have seen it stated lately that degenerated nerve fibres give rise to a toxin, colin, which is closely allied to muscarin in its action. May not this or other toxin have something to do with the reflexes not returning? A cut has much less degener-

ated nerve fibre; with the crush there would be a great deal of degenerated nerve fibre, producing more toxin and thus giving rise possibly to many of the symptoms.

DR. PUTNAM: It appears to me, also, that the toxic substances formed through the disintegration of the diseased nerve tissues may possibly cause some of the general symptoms and some of these secondary changes taking place in other parts of the cord.

Recent Literature.

Essentials of Bacteriology. By M. V. BALL, M.D. Third edition, revised. Philadelphia: W. B. Saunders. 1897.

This little book is one of the series of "Question compends" published by Saunders. It is evidently written with the aim of supplying medical students with the material for passing written examinations in elementary bacteriology. That it must be reasonably successful in this is shown by the appearance of a third edition. It is not a satisfactory presentation of the subject, however, and it cannot be recommended to those who wish to acquire some knowledge of bacteriology.

Manual of Pathology. Including Bacteriology, the Technic of Post-Mortems, and methods of Pathologic Research. By W. M. LATE COPLIN, M.D., Professor of Pathology and Bacteriology, Jefferson Medical College, etc. Two hundred and sixty-eight illustrations. Philadelphia: P. Blakiston & Co. 1897.

This work is an amplification of the author's lectures on pathology in the Jefferson Medical College, for the students of which it seems to be primarily designed. That it is a students' book is apparent by the lists of questions at the end of each chapter.

The volume is divided into three parts:

Part I is entitled "Technic" (!), and includes directions for post-mortem, histological, urine, and sputum examinations. The great defect of this part is the utter inadequacy of the space devoted to the subject of histological methods. This defect is the more prominent when it is considered that the book, according to its preface, is submitted to the public as a manual for the laboratory.

The chapter on the methods of blood-examination is good, but the remaining chapters of the part are mediocre.

Parts II and III deal with General and Special Pathology. While both of these parts are fairly well provided with good illustrations, they suffer much from condensation. This is especially apparent in the chapter devoted to bacteriology, in which the attempt is made to include the subjects of technical and descriptive bacteriology in ninety odd pages of rather large type.

We do not think that this book can take the place of other and better books devoted to the same subjects, even among beginners. Its range of subjects is too wide and its size is relatively too small for it to be of much utility to students and others outside of the author's institution. The printing and the paper are excellent, but the style of binding is not attractive.

THE BOSTON

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THE TREATMENT OF OBESITY.

A PAPER "On the Treatment of Obesity," in which he embodies his experience in the management of this common affliction, was contributed recently (October 30, 1897), to the *Bulletin Général de Théraputique*, by Prof. Albert Robin.

In answer to the question, "Who are obese?" he lays down an abstract rule applicable to adult males — women with their thinner, lighter skeletons should weigh somewhat less. Every person has a normal weight in kilogrammes represented by the number of centimetres which exceed the metre in his height. Thus a man of one metre and 70 centimetres (five feet six and a half inches) in height, ought to weigh 70 kilogrammes or 140 pounds. A woman of the same height should weigh 125 or 130 pounds. There is excess whenever the weight much exceeds this approximate norm.

With regard to the pathogeny of obesity, there seems to be general agreement (1) that it is hereditary and diathetic; (2) that as a malady it essentially consists in a retardation of nutrition, that is, of the oxidation-processes of the economy whereby ternary or quaternary compounds are rendered fit for elimination. But Le Gendre has shown that there is such a thing as obesity due to excess of assimilation as well as to want of dissimilation; and the importance of this subdivision is emphasized by Robin, who points out that patients coming under this head require special treatment. For instance, the dry-diet treatment can only do good in cases where there is exaggerated nutrition. This method, advised by Certe! and Schweninger, consists in withholding drinks as far as possible, allowing the patient no liquid with meals, and but a sparing amount two or three hours after eating. In patients obese by fault of dissimilation drinks should be permitted rather than withheld, as promoting the oxidation of the economy.

In the treatment of obesity, the dietetic regimen plays the principal part, the medical treatment being

only accessory. The regimen which Robin advocates is based on Voit's experiment, in which it was found that dogs fed exclusively on lean meat became lean, with augmentation of urea and extractives in the urine; fed on a mixed diet of starches, fats and flesh, they rapidly increased in weight and the amount of urea in the urine diminished.

Robin's diet tables prescribe five meals during the day. For breakfast, a raw egg at 8 o'clock, 20 grammes (two-thirds of an ounce) of lean meat or lean fish, the whole eaten cold and dry — this condition is emphasized, that the patient *must eat his meat cold*; cold meat may be consumed in greater quantity than hot meat without causing increase of weight; ten grammes (one-third of an ounce) of bread; one cup of hot tea without sugar. At 10 o'clock, two raw eggs, five grammes (one-sixth of an ounce) of bread, 150 centimetres (five ounces) of wine and water, or tea without sugar are allowed. At noon, cold lean meat *ad libitum*, but no bread; a little water-cress or salad salted and flavored with lemon juice; of raw fruits, 100 to 150 grammes (three to five ounces) for dessert, and for drink, may be taken, with this meal, one or two tumblerfuls of water, or water simply reddened with a little wine. One quarter of an hour after dinner a cup of weak tea not sweetened and at 4 P. M., a cup of weak tea not sweetened, and nothing else are allowed. At 7 P. M., the same repast may be taken as in the morning at 8 o'clock, and a little more lean fish or meat may be added, which the patient may eat warm; the whole quantity must not exceed 100 grammes (three and one-third ounces).

As will be seen, this regimen leaves the patient two good meals a day in which he may eat pretty freely; only azotized substances, however, and green vegetables being allowed. Bread is as far as possible suppressed, but a moderate amount of gluten bread may be permitted.

As for the general hygiene, exercise in the open air is insisted on; this may consist of a walk of half or three-quarters of an hour after each meal, that is, five times a day. It is difficult to get patients to comply with this requirement, for the corpulent have a horror of much walking. The time spent in this exercise, should be gradually increased from half an hour to three-quarters of an hour of brisk walking after each meal, and all the influence of the physician should be exerted to enforce this regulation. If the patient be a female, a carriage ride, with a walk in the country may be the utmost that can be exacted. In case the patient lives in the country and has a garden, a little exercise in the garden after meals with a hoe or other implement, or, at least, a promenade, must be enjoined.

Hydrotherapy followed by frictions, in a word, everything which stimulates the functions of the skin — vapour-baths, massage, etc. — may be enjoined.

Sleep should be regulated as well as diet. Sleep during the daytime should be absolutely interdicted. The patient should go to bed at 11 o'clock P. M. and rise at 6 A. M. during the summer, and at 7 A. M. dur-

ing the winter — not more than seven hours of sleep for the adult and eight hours for the child.

Robin thinks it possible to obtain sufficiently good effects from regimen without having recourse to any kind of medicine. He would not recommend thyroidin; though this remedy has sometimes given good and rapid results, the indications for it are still uncertain and apply only to certain cases. Moreover, it is far from being always a safe therapeutical agent, as grave accidents have happened from its use. Iodide of potassium has doubtless been given with benefit, but the doses required to cause rapid emaciation are large, and the effects on the tissues and especially on the glands are frequently disastrous. *Emaciation*, Robin justly says, is a bad designation of the end to attain; the subject ought not to *emaciate*, he ought to cease to grow fat, and he should aim to transform his obesity into simple *embonpoint*; iodide of potassium, like other so-called "alteratives," produces a rapid emaciation with all its inconveniences.

The natural mineral waters have a great reputation in the treatment of obesity, but their effects last only with the season, as they are at best only a simple adjuvant of the hygienic regimen. The best of these are the waters of Marienbad in Austria, of Sautenay and of Brides in France. The sodic-chloride waters give excellent results in obesity from nutritive failure, being excitant of the nutritive processes.

Robin presents several tables, from cases in practice, illustrative of the good effects of this regimen, and closes with the somewhat disheartening remark that, "In most obese persons the diminution of weight is always slow and never attains the normal; there is a natural tendency to corpulence and all that regimen can do is to bring about and maintain a tolerable situation."

We do not see that much is added hereby to previous literature and previous experience on this subject. In the treatment of this condition it is eminently true that what is one man's medicine is another man's poison. We ring the changes on albuminoids, carbohydrates, fats, fluids, exercise, and as a result get Banting, Ebstein, Certei, Certei-Schweninger, Yeo and Robin. The end of the circle brings us round again towards the starting-point. The very differences in the *régimes* show that some patients reach better results under one and others under another. The skill and service of the practitioner lie in the selection or modification of the method for the individual case, and in the enforcement of its application, and the latter is by no means the easier part of his task.

PEDICULOSIS IN THE PUBLIC SCHOOLS.

THE new direction in which the Boston Board of Health has been working, as shown by the communication from Dr. E. M. Greene in the last issue of the JOURNAL, is certainly a practical one and has already well proved its usefulness.

It is probable that but few of the interferences on the part of the Board of Health will be more productive of that personal cleanliness which underlies the most effective sanitary administration than this crusade against this vulgar but not insignificant parasite.

Though pediculosis or phthiriasis is now a filth disease controllable by means so simple as crude petrolum, it has not always borne so mild a character. Medical history tells us that King Antiochus, the Dictator Sylla, and Philip II of Spain, succumbed to the disease; and the older physicians are said to have found in the appearance of the parasite in the course of some of the acute diseases an encouraging critical sign.

Perhaps no better illustration can be found of the useful work of the school inspectors than this effort to secure the heads of the properly kept children from these invasions from the heads or headdresses of their less carefully guarded neighbors. It would have been impossible to accomplish the same useful result, on any large scale, by any of the ordinary agencies of the schools, and the city is to be congratulated upon the possession of a board of health which maintains a successful quarantine on the one hand, and gives a lesson in elementary personal hygiene on the other.

MEDICAL NOTES.

MALARIAL FEVER is said to be now unusually prevalent in the lower Mississippi Valley on account of the subsidence of the great floods.

"THE INTERNATIONAL MEDICAL MAGAZINE." — Beginning with the new year Dr. Henry W. Cattell retires from the editorial management of this journal, being succeeded by Dr. Walter L. Pyle.

THE ENGLISH TYPHOID EPIDEMICS. — The total number of cases of typhoid fever during the recent epidemic at Lynn is reported to have been 449, with a death-rate of just under 10 per cent. The Maidstone epidemic was much larger, there having been 1,889.

TUBERCULIN T. R. NO MORE (?) — It is announced (*Medical Record*) that the manufacture of Koch's T. R., the new style of tuberculin, has been abandoned. Koch's paper describing his wonderful extract was published on April 1, 1897, less than ten months ago.

YELLOW-FEVER SERUM — Dr. Sanarelli has sent some yellow-fever serum to Surgeon-General Wyman, of the Marine Hospital Service, and to Dr. Doty, health-officer of the port of New York. Concerning this serum, Dr. Sanarelli writes that he cannot offer it as a sovereign remedy for yellow fever, but believes that the serum would prove efficacious whenever administered during the early stages of the disease.

THE SENN MEDAL. — Those members of the American Medical Association intending to compete for the medal offered by Dr. Senn for the best essay on some surgical subject, are requested to forward the type-

written copies of contributions before March 1, 1898. Address, J. McFadden Gaston, M.D., Chairman, Atlanta, Ga.

THE EDITORSHIP OF THE "BRITISH MEDICAL JOURNAL."—The assistant editor, Mr. Dawson Williams, is mentioned as a candidate for the position left vacant by the death of Mr. Ernest Hart, and Dr. Robert Saundby, of Birmingham, it is said, would not be disinclined to take the post if offered to him. The remuneration is £500 per annum, with liberty to draw payment for articles up to a specified amount, in Mr. Hart's case, it is said, to £1,000.

BOSTON AND NEW ENGLAND.

ACUTE INFECTIOUS DISEASES IN BOSTON.—For the week ending at noon, January 26, 1898, there were reported to the Board of Health, of Boston, the following numbers of cases of acute infectious disease: diphtheria 38, scarlet fever 18, measles 18, typhoid fever 7.

THE BOSTON CITY HOSPITAL CLUB.—The Annual Dinner of the Boston City Hospital Club will be held at Young's Hotel at 7 P. M., on Wednesday, February 2d.

THE HEALTH OF BOSTON.—The Boston Board of Health issues a summary of the deaths in Boston during 1897, with the principal causes, as compared with those of 1896, which speaks very well for the health of the city during the past year. The annual death-rate is less, and the total deaths are less for 1897 than 1896, while the population is larger. We print some of the items from this creditable summary:

	1897	1896
Total number of deaths from all causes	11,154	11,634
Population (estimated)	528,912	516,306
Annual death-rate per 1,000 inhabitants	21.08	22.53
Total number from zymotic diseases	1,806	1,985
Percentage of deaths from zymotic diseases to total mortality	16.19	17.06
Total deaths of children under 5 years	3,708	4,055
Percentage of deaths under 5 years to total mortality	33.24	34.85
Total number of deaths from diarrheal diseases, under five years	475	612
Total number of deaths from diarrheal diseases, all ages	522	713
Percentage of deaths from diarrheal diseases to total mortality	4.68	6.13
Cholera infantum	400	575
Cerebro-spinal meningitis	185	21
Diphtheria	411	516
Measles	21	27
Scarlatina	136	121
Typhoid fever	173	162
Yellow fever	1	
Phthisis pulmonalis	1,289	1,328
Pneumonia	1,236	1,387

NEW YORK.

DEATH OF DR. VAN KEUREN.—Dr. Cornelius Van Keuren died at his home in New York at the age of sixty years. He was born in that portion of the city formerly known as Greenwich Village, and here he passed the greater part of his life. At the outbreak of the Civil War he joined Duryea's Zouaves, and did not leave the army until the close of the war. Later, he studied medicine, and in 1874 was graduated from the College of Physicians and Surgeons, New York.

He early received an appointment on the Board of Police Surgeons, and in October last was retired with a pension.

Miscellany.

THE POLITICAL RESPONSIBILITY OF THE PHYSICIAN.

IN a recent editorial upon the shortcomings of medical men in regard to neglect of the duties of citizenship, which their training in medicine and in particular their knowledge of sanitary service render them especially fitted to perform, the editor of the *Journal of the American Medical Association* makes a timely appeal to the profession:

"We owe," he writes, "a duty to our fellows, and of all men the physician is his brother's keeper, and his responsibility as a citizen and voter is correspondingly heightened. As individuals we feel this responsibility, but as a collective body we are apt to be remiss and forgetful in this regard, and evils that we could prevent are allowed full play. The interest of a physician in good government is something more than that of merely a good citizen; he is himself a guardian of the public in their nearest and dearest relations, and as such he has it as his duty to do all in his power to protect his charge from all evil legislation or vicious maladministration of salutary laws. In the matter of direct sanitation alone, the value of medical knowledge in the forming and execution of the laws and municipal regulations, ought to be sufficiently evident to require no demonstration.

"The fact that the gradual reduction of the rate of mortality in New York City from 25.18 to 20 in the last three years, saved 3,758 lives in 1895, 7,736 in 1896 and 9,920 in 1897, a total of 21,414 lives, is due to better government and closer attention to sanitation. If such a saving of human life can occur in one case, it can in others, and if it is to be brought about elsewhere, or generally, it will have to be through the co-operation of enlightened medical opinion acting on official ignorance and stupidity. So-called practical politicians are too generally ignorant and indifferent in regard to these matters, and the community as a whole can act intelligently only under medical supervision and advice. A sanitary issue is almost, if not altogether, an unknown thing in our politics, and when it occurs, it is handled, as a rule, along party lines and with all the disadvantages that such a course involves. Our legislatures are made up of lawyers and professional politicians without other visible means of support, together with a sprinkling of farmers and others who, though well meaning and generally honest, are apt to be prejudiced and misled on all matters that are without the limited range of their knowledge. If there are any physicians they are few in number, and, as a rule, have not the influence that they should exert, even in matters that fall directly within their professional sphere, and in regard to which they should have a predominant voice. In the French Chamber of Deputies there have generally been a number of physicians, and while the leading parts that some of them have taken may not have always reflected the most credit upon them, in medical questions they have often combined, and we do not hear of their inactivity when unintelligent legislation on medical and sanitary matters is proposed. In the British Parliament legislation in these matters is not left uninfluenced by professional action and information.

"There is no reason why these conditions should not be attained in this country nor why, in our State legislatures especially, there should not be a working representation of the medical profession, who, in all matters involving their special professional knowledge and the public health, should act together for the best interests of the community without regard to party lines. Were this the case, we might expect a beneficial reaction upon the profession it-

self; there would be less recognition of quackery and more appreciation of genuine scientific medicine on the part of politicians and the public, and with this a more satisfactory status socially as well as politically."

THE DIFFICULTIES OF THE GENERAL PRACTITIONER.

THE *Lancet*, in a recent editorial review of the subjects which have occupied professional thought during the past year, sets forth a few unpleasant facts with regard to the general practice of medicine as a profession, as follows:

"We have," writes the editor, "during the year, given a larger amount of space than usual to the discussion of the many subjects of vital interest which fall under the head of medical politics. We hope that in the near future practical developments will follow upon the sense now deep-seated in the medical profession that there are crooked matters which could be set straight by resolution, by, perhaps, a little self-sacrifice, and above all, by union. The general practitioner has as a whole class fallen, we regret to think, upon ill times. His work has grown no lighter, his responsibilities are no less exacting, but in many directions his remuneration has decreased. He is suffering in part from the overcrowding of the profession, in part from the competition of unqualified persons and lay associations, in part from the faulty administration of certain great medical charities, and in part from the rampant prevalence of quackery, which enjoys in this era of our civilization an immunity that is as perilous as it is astounding. Quacks there have ever been and quacks there will ever be; but never, we believe, in the history of the world have the mendacious statements of the charlatan enjoyed such credit or his worthless wares been bought so cheerfully and so universally at such exorbitant prices as now at the end of the nineteenth century. . . .

"That we shall attempt to point out the paths leading to a better condition of things, as we have attempted in the past, goes without saying, but it is equally certain that nothing will be done unless the profession unites to work out its own salvation. We have placed before our readers many examples of hospital abuse. The modern developments of the out-patient department cheat the sick, cheat the honorary medical officer, cheat the general practitioner, and cheat the charitable public alike. This is the view which all medical men should keep prominently before the large public with whom they are in intimate relation. We have told and are still telling the Battle of the Clubs. The Medical Aid Association is in many places and in many of its workings a name for a scheme by which medical services are undersold to the public, who, thereby, obtain all the disadvantages which attend purchase in a shoddy market, while the advantages are reaped neither by the medical man whose position is exploited nor by the suffering poor in whose cause the association claims to work. This, again, is the view which medical men should enforce upon their numerous neighbors."

Obituary.

WILLIAM HENRY THAYER, M.D.

DR. WILLIAM HENRY THAYER, whose death at Lanesboro, Mass., on December 22, 1897, was noted in the *JOURNAL*, was born in Milton, Mass., June 18, 1822. He was educated at Chauncey Hall School, of which his father, Gideon Thayer, was the founder and for a long time the head-master. He graduated at Harvard College in 1841, and studied medicine under the preceptorship of Dr. Henry I. Bowditch, and later at the Harvard Medical School, from which he was graduated in 1844.

He practised his profession for five years in Boston and thence moved to Newton. During his practice in Boston, from 1844 to 1849, he was physician to the Boston Dispensary, was connected with the Massachusetts General Hospital and also with the Boylston Medical School. He was Professor of Theory and Practice of Medicine in the Vermont Medical College from 1854-55, and in the Berkshire Medical Institute from 1859-63.

He later moved to Keene, N. H., where he remained till 1862, when he became surgeon in the Union Army, where he remained till the close of the war, when he was mustered out, having attained the rank of medical director. In 1866 he settled in Brooklyn, N. Y., where he acquired a large practice and had an enviable reputation.

He was a member of numerous medical societies, including the Massachusetts, New Hampshire, Vermont and Connecticut Valley Societies, and the New York State Medical Association, and was at various times orator, librarian and president of the medical society of the County of Kings. He was one of the organizers of the Brooklyn Pathological Society.

Dr. Thayer was married in 1845 to Ellen Handerson, of Boston, and had four children, three of whom survive him, one of them, Abbott Thayer, having gained distinction as an artist.

In 1892 he was obliged to give up the practice of his profession on account of deafness, and removed to Lanesboro, where two of his daughters had their home. There he spent the last years of his life in the enjoyment of an outdoor life and of the company of his children and grandchildren.

Correspondence.

[Special Correspondence.]

A LETTER FROM PRAGUE.

PRAGUE, January 15, 1898.

MR. EDITOR:—On Monday, January 10th, the German University of Prague opened its doors once more after a practically enforced vacation of six weeks. At the beginning of December lawlessness was practically supreme in Prague. For three days the city may be said to have been in the hands of the rioters. The few policemen were utterly unable to cope with the mob. The windows of the Chemical, of the Anatomical, and of the Pathologico-Anatomical Institutes of the German University were all smashed in. The rioters effected an entrance into the Pathologico-Anatomical Laboratories, especially the department of the Professor of Legal Medicine, and did a great deal of wanton damage. The Pathological Museum with its cases and valuable preparations suffered, perhaps, the most.

All this because the buildings bore the hated name "German," and because a deluded people thought that demonstrations of this kind would make clear to the Austrian Imperial Government their determination to stand no tampering with the official rights as to language granted them in the early spring. Not much personal violence was attempted. Two or three of the houses of well-known medical professors at the German University were stoned. On the streets the windows of stores on which were signs in German were the object of attacks; and these sometimes extended to their proprietors. It is a comical sight now on many streets to see the German words of signs roughly painted out, while sometimes the corresponding Bohemian Christian names have been substituted for the German ones.

After three days a declaration of martial law and an importation of Austrian troops restored peace. In the meantime it was thought best to give a vacation at the German University, so as to keep the students out of harm's way; and this has continued until the present week. It looks now as though the trouble was over, for the time being at least, though it is still thought advisable

by the university authorities to keep special details of soldiers guarding the various laboratories. On Sundays and holidays, when the presence of large numbers of the laboring classes on the street might prove the occasion for further riotous demonstrations, these guards are strengthened.

It is not the first time there has been serious trouble between the Cjecks (Bohemian Slavs) and the Germans in Prague, but it is the first time matters have gone so far as this. Just before the end of the year a meeting of the German students and professors was called down at Eger, near the Bavarian boundary, to discuss the question of the removal of the German University of Prague, the oldest German university, by the way, in Europe, to some town situated among a distinctly German population. Reichenberg and Aussig held out inducements to come to them. It was pointed out that just five hundred years ago the German students left Prague and founded the University of Leipsic because they were denied equal rights with their Bohemian colleagues.

It is not so easy to move a university in these days as in the fifteenth century, however. Above all, money is needed; and that, under present political conditions in Austria, comes rather slowly and sparsely for educational purposes. Another difficulty is, that to abandon Prague now would look too much like ignobly withdrawing before the hated Slav enemy and giving up the fight for German rights in the city. The sentimental patriotic idea had almost more weight than any other, and so it was resolved that the German University of Prague should remain where it is.

The recent excesses are to be deeply deplored; but such things inevitably occur where a people is deeply stirred by questions of national and racial interest. Several years ago Marion Crawford said of Prague: "It is the focus in which are concentrated the hottest if not the brightest rays from the fire of regeneration kindled within the last half-century by the Slavonic race. There is an ardent furnace of life hidden beneath the crust of ashes; there is a wonderful language behind the national silence." For some years now the wonderful language has come out of the national silence. In fifteen years the Cjeckish University of Prague has grown to be one of the great universities of Europe. Its medical department, founded scarcely thirteen years ago, has over eight hundred students, and a faculty among whom such names as Horba, Cjewski, Hlawa and Janischik are representative of the calibre of the men. Unfortunately the national fire smouldering beneath the ashes of accumulated years occasionally (as in this case) bursts forth destructively. To an American, however, the Slavish movement can scarcely fail to appeal sympathetically. A nation is seeking an outlet for its energies, is striving to find its development, and that in the only way that it can properly come — through its own language and literature. It makes, perhaps, exaggerated claims for what it has already accomplished and for the future that is in store for it; but the medical world saw with surprise during the Moscow Congress the marvellous progress that the Russian Slavs had made in scientific medicine; and the prospects there are for a still more brilliant future. To visitors to the Congress I think the promise that there is a great future in store for the Slavs is clear.

To her medical men almost more than to any other class in the community, the Cjeckish cause owes the best elements that have come to the fore with Cjeckish development. They have been, and the Bohemian University of Prague has been, turning out nearly one thousand of them a year for ten years — the great propagators of patriotic sentiments among the people, the guardians of the fires of national feeling. The present state of affairs is, then, of special interest to the profession all over the world.

There is, besides, an interesting medical question, though it is, perhaps, more distinctly an ethnological one, bound up in the progress of the present Slav movement. It is the question of the development of a people at the expense of another, and the other issue of the exhaustion of the terrain of a nation's evolution after she has reached a cer-

tain phase of her development. Everywhere here in Central Europe where the Teutons come in contact with Slavs or Huns they are losing in prestige. German, which was so common on the Russian confines twenty-five years ago, is scarcely heard there now. In Hungary, German has practically disappeared before the Oriental tongue of the young and vigorous nation, whose capital is the most enterprising town in Europe, and whose people delight in nothing so much as comparison with Americans. Here in Bohemia, before the Prussian-Austrian War of 1866, German was spoken everywhere; now Bohemian or Cjeckish, has taken its place except near the Prussian and Bavarian boundaries. There is a wellspring of vigor somehow in these undeveloped people, whose acme of evolution is only in the future somewhere. The interesting question of the effects on each other of two different stages of national evolution in contact is the spectacle the world will see during the next twenty-five years. For Bohemia will, it is said, during this jubilee year of Franz Joseph, become once more a kingdom by his coronation here.

PEDICULOSIS.

419 BOYLSTON STREET, BOSTON,
January 22, 1898.

MR. EDITOR:—In reading Dr. E. M. Greene's correspondence in your issue of January 20th, I notice that he makes no mention of treating the headgear of the children. This seems to me to be an important adjunct to the treatment, and if not carried out recurrences may be expected; it would also be an aid to the prevention of infection among other children.

In cases which come to the hospital I not uncommonly have found nits inside the hats, and occasionally the pediculi themselves. This applies particularly to the "Tam O'Shanter," which is worn by a large proportion of public-school children at the present time.

It is easily conceivable how a cap infected with pediculi may lose one or more of its inhabitants on to a hat hanging adjacent to it. Moreover, I find that it is not an uncommon custom for the children to put on each other's hats.

When we consider that a female louse lays from fifty to sixty eggs, and that these hatch out after six days' incubation, and, moreover, that the female exists in much greater number than the male, it is easy to see how good are the chances for the parasite to spread. I have been in the habit of ordering the headgear thoroughly sponged with a ten-per-cent. solution of carbolic acid, in cases which come to the hospital, and have found this treatment efficacious.

Very truly yours,
GEORGE F. HARDING, M.D.

METEOROLOGICAL RECORD

For the week ending January 15th, in Boston, according to observations furnished by Sergeant J. W. Smith, of the United States Signal Corps:—

Date.	Baro- meter	Thermom- eter.			Relative humidity.			Direction of wind.		Velocity of wind.		We'th'r. •		Rainfall in inches.
	Daily mean.	Daily mean.	Maximum.	Minimum.	8.00 A. M.	8.00 P. M.	Daily mean.	8.00 A. M.	8.00 P. M.	8.00 A. M.	8.00 P. M.	8.00 A. M.	8.00 P. M.	
S...9	30.02	36	40	32	56	58	57	W.	N.W.	10	8	C.	O.	
M...10	30.22	36	46	27	65	53	59	W.	S.W.	3	9	C.	O.	
T...11	30.20	34	38	30	66	66	76	N.	S.E.	11	6	C.	O.	
W...12	29.81	44	56	36	94	90	92	S.	S.W.	10	17	G.	O.	.02
T...13	29.74	42	55	30	78	65	72	W.	N.W.	17	12	G.	O.	.02
F...14	30.26	32	36	27	75	69	72	N.	N.	10	8	N.	O.	.02
S...15	29.92	34	39	30	66	96	81	S.	S.E.	12	3	O.	R.	.02

* O., cloudy; C., clear; F., fair; G., fog; H., hazy; S., smoky; R., rain; T., threatening; N., snow. † Indicates trace of rainfall. — Mean for week.

RECORD OF MORTALITY
FOR THE WEEK ENDING SATURDAY, JANUARY 15, 1898.

Cities.	Estimated population.	Reported deaths in each.	Deaths under five years.	Percentage of deaths from					
				Infectious diseases.	Acute lung diseases.	Typhoid fever.	Diphtheria and croup.	Measles.	
New York . . .	1,868,060	714	240	9.52	20.02	.42	2.52	2.24	
Chicago . . .	1,619,226	—	—	—	—	—	—	—	
Philadelphia . .	1,214,256	489	149	13.02	13.44	3.57	5.67	1.06	
Brooklyn . . .	1,160,000	—	—	—	—	—	—	—	
St. Louis . . .	570,000	185	52	4.32	18.36	.54	2.16	—	
Baltimore . . .	550,000	180	65	9.52	15.24	1.02	5.60	.56	
Boston . . .	517,732	223	68	6.30	20.25	.46	4.50	—	
Cincinnati . . .	405,000	—	—	—	—	—	—	—	
Cleveland . . .	350,000	78	26	8.96	12.80	2.56	5.12	—	
Pittsburg . . .	285,000	98	31	9.00	14.00	3.00	1.00	5.00	
Washington . . .	277,000	96	24	10.40	22.88	8.12	3.12	1.04	
Milwaukee . . .	275,000	—	—	—	—	—	—	—	
Nashville . . .	65,165	29	6	6.90	24.15	3.45	—	—	
Worcester . . .	105,064	27	10	3.70	22.20	—	—	—	
Fall River . . .	96,919	—	—	—	—	—	—	—	
Lowell . . .	87,138	29	7	3.45	17.25	—	3.45	—	
Cambridge . . .	86,812	34	14	5.88	25.62	—	5.88	—	
Lynn . . .	65,220	18	—	5.55	16.6	—	—	—	
Charleston . . .	65,165	23	7	4.35	13.05	—	—	—	
New Bedford . .	62,418	24	10	12.48	8.32	—	8.32	—	
Lawrence . . .	55,510	14	7	7.14	7.14	—	7.14	—	
Springfield . . .	54,790	21	7	—	14.28	—	—	—	
Holyoke . . .	42,364	11	6	27.27	9.09	—	—	9.09	
Portland . . .	40,000	—	—	—	—	—	—	—	
Salem . . .	36,062	7	1	—	28.56	—	—	—	
Brookton . . .	35,853	11	2	—	—	—	—	—	
Malden . . .	32,884	4	2	—	25.00	—	—	—	
Chelsea . . .	32,716	8	0	12.50	12.50	—	12.50	—	
Haverhill . . .	31,406	12	1	—	8.33	—	—	—	
Gloucester . . .	29,775	—	—	—	—	—	—	—	
Newton . . .	28,990	7	3	—	14.28	—	—	—	
Fitchburg . . .	28,392	7	3	—	—	—	—	—	
Taunton . . .	27,812	10	3	—	20.00	—	—	—	
Quincy . . .	22,562	4	1	—	—	—	—	—	
Pittsfield . . .	21,891	—	—	—	—	—	—	—	
Waltham . . .	21,512	5	0	—	20.00	—	—	—	
Everett . . .	21,575	8	1	—	—	—	—	—	
Northampton . .	17,448	—	—	—	—	—	—	—	
Newburyport . . .	14,794	6	1	—	—	—	—	—	
Amesbury . . .	10,920	—	—	—	—	—	—	—	

Deaths reported 2,374; under five years of age 766; principal infectious diseases (small-pox, measles, diphtheria and croup, cerebro-spinal meningitis, diarrheal diseases, whooping-cough, erysipelas and fevers) 218, acute lung diseases 430, consumption 261, diphtheria and croup 86, typhoid fever 35, measles 28, diarrheal diseases 27, scarlet fever 22, cerebro-spinal meningitis 9, erysipelas 6, whooping-cough 6.

From diarrheal diseases New York 12, Philadelphia 7, Baltimore 3, St. Louis, Washington, Nashville, Charleston and Worcester 1 each. From scarlet fever New York 17, Philadelphia and Pittsburg 5 each, Baltimore and Holyoke 1 each. From cerebro-spinal meningitis St. Louis 2, Philadelphia, Boston, Washington, New Bedford and Clinton 1 each. From erysipelas Philadelphia 3, Boston, Cleveland and Providence 1 each. From whooping-cough New York 2, Boston, Washington and Lynn 1 each.

In the thirty-three greater towns of England and Wales, with an estimated population of 11,218,378, for the week ending January 8th, the death-rate was 21.4. Deaths reported 4,612; acute diseases of the respiratory organs (London) 533, measles 220, whooping-cough 128, diphtheria 74, scarlet fever 44, fever 43, diarrhea 37.

The death-rates ranged from 12.6 in Cardiff to 27.5 in Norwich; Birkenhead 17.5, Birmingham 23.7, Brighton 16.6, Croydon 18.4, Gateshead 23.6, Huddersfield 23.9, Hull 17.5, Leeds 20.9, Liverpool 22.4, London 23.0, Newcastle-on-Tyne 18.0, Sheffield 18.9, Sunderland 18.8, West Ham 17.8.

OFFICIAL LIST OF CHANGES IN THE STATIONS AND DUTIES OF OFFICERS SERVING IN THE MEDICAL DEPARTMENT, U. S. ARMY, FROM JANUARY 15, 1898, TO JANUARY 21, 1898.

Leave of absence for two months, with permission to go beyond sea, to take effect April 1, 1898, is granted CAPTAIN CHARLES F. MASON, assistant surgeon, U. S. Military Academy, West Point, N. Y.

OFFICIAL LIST OF CHANGES IN THE MEDICAL CORPS OF THE U. S. NAVY FOR THE WEEK ENDING JANUARY 22, 1898.

A. G. CABELL, surgeon, ordered home and granted three months' sick leave.

A. W. DUNBAR, passed assistant surgeon, order of January 12th modified; detached from the "Nashville," and ordered to the "San Francisco," by steamer of January 22d.

OFFICIAL LIST OF CHANGES OF STATIONS AND DUTIES OF COMMISSIONED OFFICERS OF THE UNITED STATES MARINE-HOSPITAL SERVICE FOR THE SEVEN DAYS ENDING JANUARY 20, 1898.

WHITE, J. H., passed assistant surgeon. To rejoin station at New York, N. Y. January 20, 1898.

BROWN, B. W., passed assistant surgeon. To proceed to Birmingham, Ala., for special temporary duty. January 19, 1898.

ROSENAU, M. J., passed assistant surgeon. To proceed to San Francisco, Cal., as inspector of unserviceable property. January 14, 1898.

BOARD CONVENED.

Board convened to meet in Washington, D. C., January 21, 1898, for the physical examination of officer of the Revenue Cutter Service: Surgeon C. E. BANKS, Chairman; Passed Assistant Surgeon G. T. VAUGHAN, and Passed Assistant Surgeon E. K. SPRAGUE, Recorders.

AN ARMY MEDICAL BOARD

Will be in session at Washington City, D. C., during the month of May for the examination of candidates for appointment to the Medical Corps of the United States Army, to fill existing vacancies.

Persons desiring to present themselves for examination by the Board will make application to the Secretary of War, before April 15, 1898, for the necessary invitation, giving the date and place of birth, the place and State of permanent residence, the fact of American citizenship, the name of the medical college from which they were graduated, and a record of service in hospital, if any, from the authorities thereof. The application should be accompanied by certificates based on personal acquaintance, from at least two reputable persons, as to his citizenship, character and habits. The candidate must be between twenty-two and twenty-nine years of age, and a graduate from a regular medical college, as evidence of which, his diploma must be submitted to the Board.

Successful candidates at the coming examination will be given a course of instruction at the next session of the Army Medical School, beginning in November, 1898.

Further information regarding the examinations may be obtained by addressing the Surgeon-General, United States Army, Washington, D. C.

GEORGE M. STERNBERG, *Surgeon-General, U. S. Army.*

SOCIETY NOTICE.

THE SUFFOLK DISTRICT MEDICAL SOCIETY, SURGICAL SECTION.—The Surgical Section will meet at the Medical Library, 19 Boylston Place, on Thursday evening, February 3d, at 8.30 o'clock.

Papers: "Hysterectomy for the Removal of Large Uterine Myomata by the Combined Vaginal and Abdominal Method," by Dr. Dudley P. Allen, of Cleveland, O. Drs. John Homans, G. W. Gay, A. T. Cabot, J. W. Elliot, F. S. Watson and J. C. Munro will discuss the paper.

"Deformities of the Head due to Faulty Positions during Infancy," by Dr. J. E. Goldthwait.

The presentation of specimens, apparatus, etc., of surgical interest is invited.

PAUL THORNDIKE, M.D., *Secretary, 244 Marlborough St.*

TALKS ON THE HISTORY OF MEDICINE.

Dr. David Hunt, of Boston, will give informal lectures on "The History of Medicine," by invitation of the Harvard Medical Alumni Association, at the Harvard Medical School on Thursdays, January 13th, 20th, 27th, at 8 p. m. The profession and the students of the Harvard Medical School are cordially invited to attend.

J. S. STONE, M.D., *Secretary.*

BOOKS AND PAMPHLETS RECEIVED.

The Histological Basis of the Neuron Theory. By David I. Wolfstein, M.D., Cincinnati, O. Reprint. 1897.

The Surgical Treatment of Suppurative Pericarditis. By John B. Roberts, A.M., M.D., Philadelphia, Pa. Reprint. 1897.

Transactions of the Congress of American Physicians and Surgeons, Fourth Triennial Session, held at Washington, D. C., May 4, 5 and 6, 1897. Published by the Congress. 1897.

The Leadville Campaign. A paper presented to the Association of Military Surgeons of the United States. By Col. Clayton Parkhill, and Major L. H. Komble, Denver, Col. Reprint. 1897.

Original Articles.

ACUTE DEGENERATIONS OF THE NERVOUS SYSTEM IN DIPHTHERIA.¹

BY JOHN JENKS THOMAS, A.M., M.D.,
From the Pathological Laboratory of the Boston City Hospital.

(Continued from No. 4, p. 79.)

CASE XI (363). Boy, age six and one-half years. This was a septic case, with a total duration of ten days. There was vomiting. Albumin was present in the urine. The heart's action was regular. Pulse weak. He had regurgitation of fluids through the nose.

Autopsy.—June 21, 1897. Clinical diagnosis: diphtheria. There was a grayish membrane on the tonsils and the upper part of the esophagus. Heart: weight, 105 gm. Muscle red and moist. Left ventricle slightly dilated. Mitral valve admits two fingers beyond the first joint. Wall from one-half to one and two-tenths centimetres thick. The other valves and cavities were normal. Brain: weight, 1,340 gm. Soft in consistency, but otherwise normal. Anatomical diagnosis: diphtheritic tonsillitis and esophagitis, chronic fibrinous pleuritis, slight emphysema of lungs, acute congestion of liver, tuberculosis of cervical and mesenteric lymph glands, acute general lymphatic hyperplasia. Cultures: heart, spleen and brain sterile; liver, Klebs-Löffler bacillus (pure); kidney, Klebs-Löffler bacillus; colon bacillus and staphylococcus albus; right middle ear, Klebs-Löffler bacillus, and staphylococcus pyogenes aureus; left middle ear, staphylococcus pyogenes aureus, and a very few Klebs-Löffler bacilli.

Microscopical Examination.—Pneumogastric nerve: sections showed a moderately extensive degeneration. A majority of the nerve fibres had swollen and broken myelin sheaths with a considerable amount of fat present. The axis cylinders had often disappeared and in other cases were irregular and beaded in outline, and broken by fat drops.

CASE XII (400). Girl, age two and one-half years. On admission had been ill three days. She had nasal and faucial diphtheria, with some prostration. Pulse 100–120. The pulse failed gradually, the lips became cyanotic, and the extremities cold. There was no note of paralysis. The child died on the eighth day of the disease.

Autopsy.—June 27, 1897. Clinical diagnosis: diphtheria. Heart: weight, 75 gm. In the left ventricle there was a firm thrombus, attached to the interventricular septum. The valves were normal. The tonsils were deeply ulcerated. There was pus in the right ear. Brain: weight, 1,195 gm. It was moderately injected. Anatomical diagnosis: ulceration of tonsils, diphtheritic rhinitis, otitis media. Cultures: heart, streptococcus; liver, spleen and kidney, sterile; right ear, staphylococcus aureus and a few Klebs-Löffler bacilli.

Microscopical Examination.—Medulla: sections at the level of the pyramidal crossing showed a moderate amount of degeneration, with the presence of considerable fat in the pyramidal fibres. The degenerative process had also affected the fibres of the posterior tracts, but to a rather less extent. The nerve cells were normal. Sections from the cortex of the brain showed the presence of an occasional fat drop in a few fibres. Sections of the pneumogastric nerve showed a slight but rather extensive degeneration. A considerable number of fibres showed swollen and granular myelin sheaths, stained grayish in color, and the presence of a small amount of fat. The axis cylinders were many of them swollen and beaded.

CASE XIII (325). Boy, age six years. The pulse in this case varied between 70 and 120. There was albumin in the urine. Paralysis of the palate was noted on the forty-first day of the disease. The child died on that day with heart symptoms.

Autopsy.—July 9, 1897. Clinical diagnosis: diphtheria. Heart: weight, 115 gm. Normal. Brain: 1,240 gm.

¹ This paper will appear in the Medical and Surgical Reports of the Boston City Hospital for 1898.

Normal. There was pus in the right ear. Anatomical diagnosis: edema of lungs, otitis media. Cultures: heart, negative; spleen, sterile; kidney, colon bacillus and staphylococcus albus; liver, colon bacillus and staphylococcus citreus; lung, streptococcus and Klebs-Löffler bacillus.

Microscopical Examination.—Pneumogastric nerve: sections showed very slight degenerative process. A few fibres were much swollen, irregular in outline, beaded, and stained grayish. The axis cylinders of these fibres were irregular and beaded. Rarely a few fat drops could be seen in the myelin sheath.

CASE XIV (494). Woman, age sixty-four years. This was a septic case, which was delirious. The total duration was about three weeks. The patient died from extension of the membrane. The pulse was weak and rapid, but regular.

Autopsy.—July 16, 1897. Clinical diagnosis: diphtheria. Heart: weight, 210 gm. Muscle dark brown in color. Valves normal. There was membrane on the pharynx, tonsils, epiglottis, onto the tongue, and beginning of esophagus, down to the larynx and whole of the trachea, into the primary bronchi. Anatomical diagnosis: diphtheritic pharyngitis, tonsillitis, uvulitis, laryngitis, glossitis, tracheitis and bronchitis, broncho-pneumonia, emphysema of lungs, edema of lungs, chronic passive congestion of spleen, kidneys and liver. Cultures: heart, negative; lung, Klebs-Löffler bacillus and pneumococcus; liver and spleen, sterile; kidney, few Klebs-Löffler bacilli, and colon bacillus.

Microscopical Examination.—Pneumogastric nerve: sections showed a large majority of the fibres grayish in color, granular, and some intensely swollen. Fat was present in moderate amounts. The axis cylinders in the affected fibres could not usually be made out, but when present were beaded, irregular and broken.

CASE XV (105). Boy, age five years. The child was admitted to the hospital in a septic condition, and died within twenty-four hours, after an illness of two weeks. No note of paralysis. Pulse was 79 and weak.

Autopsy.—July 20, 1897. Clinical diagnosis: diphtheria. Heart: weight, 140 gm. Left ventricle dilated. No valvular lesion. Brain: weight, 1,450 gm. Normal. Anatomical diagnosis: diphtheritic pharyngitis, laryngitis, etc., dilatation of heart, chronic passive congestion, ascites, hydrothorax. Cultures: heart, liver and kidneys, colon bacillus; spleen, colon bacillus and Klebs-Löffler bacillus; lung, Klebs-Löffler bacillus and a few streptococci.

Microscopical Examination.—Pneumogastric nerve: sections showed rather a slight degenerative process. A moderate number of fibres were grayish in color, and irregular in outline, with occasional fat drops. The axis cylinders were swollen and beaded in the affected fibres.

CASE XVI (59). Boy, age five years. Duration of the disease was fifteen days in all. The child was languid. Four days before death the pulse was irregular and weak (130). He vomited twice. There was a partial collapse the day before the child died. There was no note made of paralysis. The pulse the last day was weak and intermittent.

Autopsy.—July 30, 1897. Clinical diagnosis: diphtheria. Slight increase of pericardial fluid. Heart: weight, 120 gm. All cavities were much dilated, and filled with post-mortem clots. No endocardial changes. Auriculo-ventricular valves, especially the mitral, were dilated. Heart muscle yellowish and opaque, probably due to fat. Trachea, larynx, etc., nothing abnormal to be seen. A little pultaceous material covered the tracheal mucous membrane. Right tonsils slightly enlarged, and follicles large and open. Brain: weight, 1,295 gm. Very edematous. Lateral ventricles enlarged, and filled with clear fluid. The roof of thalami showed a peculiar roughness and looseness of tissue, which might be due to strain of edematous tissue. Anatomical diagnosis: dilatation of heart, congestion and edema of lungs, congestion and fatty degeneration of liver, acute splenic hyperplasia, chronic passive congestion and infarction of kidneys, healed tuberculosis of mesenteric

lymph glands, defects of skull through irregular union of coronal suture, with adhesion of membranes, and local atrophy of brain. Cultures: heart, negative; liver, colon bacillus and streptococcus; spleen, abundant streptococcus (pure); kidney, streptococcus and colon bacillus; sphenoidal sinus, streptococcus and a variety of non-pathogenic bacteria.

Microscopical Examination. — Pneumogastric nerve: in this case there was marked and extensive degeneration. The sections showed a large proportion of the nerve fibres affected to a greater or less extent. Most of the fibres were swollen and grayish, and in many of these there were present considerable amounts of fat, both in the nerve sheath and in the axis cylinder. The axis cylinders were absent in most of the fibres most affected, and were irregularly swollen in the other fibres. Sections from the floor of the fourth ventricle showed the presence of fat in the nerve sheath, and in some instances replacing the axis cylinder, in a considerable number of the nerve fibres seen. The nerve cells seemed normal. Sections from the cortex of the brain showed a moderate amount of fat along the nerve fibres. The nerve cells were apparently unaffected.

CASE XVII (534). Boy, age six years. Had been ill one day, when admitted, with faucial and nasal diphtheria. Was quite septic on admission. Throat cleared up slowly. Pulse 80-130. Forty-eight hours before death pulse became weak and irregular. Vomited on the last day. Noted that he had almost complete paralysis of the soft palate. Patellar and superficial reflexes were all diminished.

Autopsy. — August 14, 1897. Clinical diagnosis: post-diphtheritic cardiac paralysis. Body of boy about six years, one hundred and twelve centimetres long. Pericardial cavity normal. Heart: weight, 90 gm. Muscle pale, with minute whitish specks distinctly seen on endocardium. Cavities and valves normal. Left tonsil showed a deep loss of substance, with thin pale membrane. Right tonsil enlarged and hyperemic. Esophagus and trachea normal. Brain: weight, 1,380 gm., normal. Membranes normal. Anatomical diagnosis: ulceration of left tonsil, acute rhinitis, tonsillitis, pharyngitis, mucoid degeneration of sphenoidal sinuses and left middle ear, fatty degeneration of heart muscle, chronic adhesive pleurisy, general acute lymphatic hyperplasia. Cultures: heart and liver, sterile; spleen, colon bacillus, and pyocyanus; kidney, colon bacillus; sphenoidal sinus, almost pure growth of a large coccus growing in straight chains; left ear, pyocyanus, and a bacillus resembling in growth and morphology the colon bacillus, but not stained by Löffler's methyl-blue stain.

Microscopical Examination. — Pneumogastric nerve: sections showed extensive degenerative processes, hardly a single nerve fibre being free from changes. The myelin sheaths were granular and irregular, and all through the specimens there were many fat drops, chiefly small, and in the nerve sheaths. In some fibres the axis cylinders could not be made out, and in most fibres they were irregular and beaded. Sections of the cauda equina showed a moderate number of fibres with granular myelin sheaths, and occasionally fat drops were seen in the sheaths. The axis cylinders were occasionally beaded, but in general appeared normal. Sections of the spinal cord showed an extensive degeneration of the fibres of the anterior nerve roots with granular nerve sheaths and a moderate amount of fat, and a less extensive degeneration of the posterior nerve roots. There was a very extensive and intense degeneration of the posterior root zone of the cord, with a large amount of fat. Throughout the cord there was a moderate amount of degeneration of the fibres of the white substance, slightly more marked in the posterior columns, involving both nerve sheaths and axis cylinders, shown by the presence of larger and smaller fat drops. This was most marked at the periphery of the cord (lack of penetration of the osmic acid). The blood-vessels were widely dilated at various places. The central canal was very much dilated, and a few red blood corpuscles were seen within it. The cells of the gray matter and the fibres of this part of the cord appeared

normal. Sections of the heart muscle, stained by Marchi's method, showed a most extensive and intense fatty degeneration of the muscle fibres. Many of the fibres contained larger and smaller drops of fat, many of them being completely filled with these drops. The fibres containing fat appeared swollen, as did many of the others. Most of the fibres had lost their striations and appeared homogeneous or granular. Here and there throughout the tissue there were areas of infiltration with round lymphoid cells, which had large deeply staining nuclei and little protoplasm. These areas were found chiefly in the interstitial tissue, and about the blood-vessels, but a number of them were found in the myocardium itself.

The following cases were of diphtheria accompanied by scarlet fever in which histological examinations of the nerves were made:

CASE XVIII. Girl, age seven years. Admitted on second day of the disease with diphtheria; was up on the sixth day. On the ninth day the rash of scarlet fever appeared. Membrane appeared on the tonsil. Cultures from the throat were positive. The pulse became rapid. Temperature 103-104°. Urine of acute nephritis.

Autopsy. — February 18, 1897. Clinical diagnosis: diphtheria and scarlet fever. Dull red papular eruption on thighs, upper arms, neck and trunk. Heart: normal size. Pericardium contained a small quantity of clear serous fluid. Valves and cavities normal. Edges of tonsils raw, reddened and swollen, and covered with muco-pus. Trachea and esophagus normal. Anatomical diagnosis: scarlet fever, congestion and edema of lungs, pericardial effusion, acute splenic tumor. Cultures: trachea, variety of bacilli, few streptococci, no Klebs-Löffler bacilli; lungs, many streptococci; liver, few streptococci, and about twenty-five colonies of staphylococcus aureus; spleen, many streptococci (pure); kidney, one colony of staphylococcus aureus and a few colon bacilli.

Microscopical Examination. — Pneumogastric nerve: sections showed an occasional degenerated nerve fibre, with replacement by fat drops, and disappearance or beading of the axis cylinder, and a few granular and brownish discolored fibres, but the sections in the main were normal.

CASE XIX. Boy, age three years. Entered the hospital with measles and diphtheria. Had been ill two days. On the eighth day of the disease temperature rose, throat was red, and the tonsils swollen. A culture five days before had been negative. That evening became cyanotic. Respiration was rapid. Extremities cold. Pulse scarcely perceptible, and the child died soon after.

Autopsy. — February 20, 1897. Dull red papular eruption on trunk, neck and face. Tonsils swollen, and mucous membrane about them raw and red. Heart: weight, 80 gm. Valves and cavities normal. The trachea and esophagus were normal. Anatomical diagnosis: scarlet fever, bronchitis and broncho-pneumonia, acute hyperplasia of mesenteric lymph glands. Cultures: liver, sterile; spleen, Klebs-Löffler bacillus fairly abundant; kidney, a few colonies of Klebs-Löffler bacillus; left lung, abundant growth of discrete colonies (about 100) of Klebs-Löffler bacillus, and one colony of staphylococcus pyogenes aureus; right lung, Klebs-Löffler bacillus and staphylococcus present, but colonies were not distinct on account of the presence of a liquefying bacillus.

Microscopical Examination. — Pneumogastric nerve: the section showed marked changes. About one-half of all the fibres showed the presence of fat globules in the myelin sheath, which was much broken, irregular and swollen. The axis cylinders were swollen, beaded, broken and occasionally could not be made out. Rarely could a fibre, which appeared normal, be traced any distance without showing signs of degeneration.

CASE XX. — Girl, age fourteen months, a sister of the previous case, entered the hospital after an illness of two days, with measles and diphtheria. On the fourth day of her stay in the hospital developed the eruption of scarlet fever. Three days later was only semiconscious, and died the next day, the tenth day of the disease.

Autopsy. — February 21, 1897. Dull brownish papular

eruption on arms and face. Right side of face swollen. Tonsils enlarged and reddened. Mucous membrane of pharynx, larynx and trachea injected. No evidence of membrane. Heart: weight, 33 gm. Valves and cavities normal. Pericardium normal. Anatomical diagnosis: acute fibrinous pneumonia and pleurisy of left lung, broncho-pneumonia of right lung, general lymphatic hyperplasia. Cultures: trachea, few Klebs-Löffler bacilli, and streptococcus; left lung, lower lobe, staphylococcus aureus and albus and colon bacillus; left lung, upper lobe, few Klebs-Löffler bacilli, staphylococcus aureus and albus, and colon bacillus; right lung, staphylococcus albus and streptococcus; liver, colon bacillus and bacillus fetidus; spleen and kidney, bacillus fetidus.

Microscopical Examination. — Pneumogastric nerve: sections showed well-marked degenerative changes. Many of the fibres contained fat globules, and the sheaths were swollen and irregular. The axis cylinders of these fibres were absent or beaded.

CASE XXI. — Boy, age three years. Admitted with diphtheria. On the second day the eruption of scarlet fever appeared. Pulse was rather rapid, between 90 and 160. There was albumin in the urine. The child was drowsy. On the twentieth day he had a general tonic convulsion. Another one occurred one hour later, in which he died.

Autopsy. — February 27, 1897. Body, 90 centimetres long. Skin desquamating over upper chest, back, and upper arms. Heart: weight, 55 gm., large. Muscle, dull, red, moist. Left ventricle dilated. Mitral orifice dilated, valve incompetent. Valves otherwise normal. Pericardium distended by large accumulation of clear serous fluid. Anatomical diagnosis: acute interstitial nephritis, pericardial effusion, dilatation of left ventricle, edema of lungs, chronic passive congestion of lungs, liver and spleen, acute hyperplasia of abdominal lymph glands. Cultures: trachea, few streptococci; right lung, lower lobe, few Klebs-Löffler bacilli, staphylococcus aureus and albus; liver and spleen sterile; kidneys, four tubes, three sterile, one showed a very few short chains of streptococci and a few Klebs-Löffler bacilli.

Microscopical Examination. — Pneumogastric nerve: the sections showed marked and extensive changes. Scarcely any fibres could be found which did not show the presence of fat globules in some part of the distance through which they could be traced. The myelin sheaths were swollen and broken, as were also the axis cylinders, and practically all the nerve sheaths showed a granular appearance when fat drops were not present.

CASE XXII. Boy, age five years. Admitted with septic diphtheria. Had been ill two days. On the ninth day of disease it was noted that he was dull, and vomited. On the twelfth day he had improved somewhat. On the twentieth day he developed the rash of scarlet fever. He had paralysis of both legs, and could not stand nor move the limbs. The knee-jerks were absent and the plantar reflex slight. On the thirty-second day he became drowsy, vomited, and died.

Autopsy. — March 2, 1897. Heart: large, found in diastole. Muscle moist. Slight thickening in right mitral curtain. Left ventricle dilated. Some yellow, opaque areas in middle aortic cusp, over corpora aurantia. Right ventricle showed slight degeneration. Pericardium normal. Larynx normal. Tracheal mucous membrane injected, covered by a tenacious mucus-like exudate, which was easily separated. Esophagus, normal. Anatomical diagnosis: dilatation of left ventricle, slight arterio-sclerosis, congestion and broncho-pneumonia of lungs. Cultures: trachea, negative; right lung, lower lobe, six colonies of staphylococcus pyogenes aureus and a few Klebs-Löffler bacilli, degenerated forms; liver and spleen, sterile; kidney, four colonies of staphylococcus aureus, Klebs-Löffler bacillus, and streptococcus.

Microscopical Examination. — Heart muscle: interventricular septum. Sections showed that many of the muscle fibres had lost their striations and become homogeneous. Some of them showed the presence of vacuoles.

Very rarely a fatty, degenerated fibre was found. In the connective tissue, and about the blood-vessels, and to a slight extent in the muscular tissue there were occasional areas of infiltration with small, round, lymphoid cells.

The next cases are of measles and diphtheria, complicated by noma in Case XXIV.

CASE XXIII. Boy, age ten months. Child had been ill with measles, and was admitted to the hospital with diphtheria, still having the measles eruption. Four days after entrance he developed pneumonia, became pale and cyanotic, and died on the next day.

Autopsy. — March 2, 1897. Legs, arms, chest, neck, and lower portion of face covered with a discrete raised hyperemic papular eruption. Heart: weight, 50 gm. Valves and cavities normal. Heart muscle rather pale. Tongue, tonsils, larynx, pharynx and trachea showed no changes except a slight hyperemia of the trachea. Anatomical diagnosis: acute broncho-pneumonia of both lungs, with complete consolidation of lower lobe of left lung, chronic tuberculosis of middle lobe of right lung, cloudy swelling of liver, spleen and kidneys, acute lymphatic hyperplasia, papular rash, evidently that of measles, decubitus over sacrum, hyperemia of trachea, acute splenitis. Cultures: trachea, many Klebs-Löffler bacilli, staphylococcus albus; right lung, and left lung, lower lobe, Klebs-Löffler bacillus, staphylococcus albus and streptococcus; liver, streptococcus (large); spleen, Klebs-Löffler bacillus and streptococcus; kidney, few Klebs-Löffler bacilli and colon bacillus.

Microscopical Examination. — Pneumogastric nerve: sections stained by Marchi's method showed both in cross and longitudinal sections extensive degenerative changes, though not exceedingly intense. Almost all the nerve fibres showed the presence of fat, but in rather moderate amount, and confined chiefly to the medullary sheath, which was fragmented and swollen. The axis cylinders were grayish in color in many instances, and swollen and beaded.

CASE XXIV. Boy, age two years. Was admitted to the hospital. Diphtheria bacilli were found in the nose. There was no rash of scarlet fever. He developed broncho-pneumonia, and a gangrene of the face and jaw, and died on the thirtieth day of the disease.

Autopsy. — March 7, 1897. Clinical diagnosis: measles and broncho-pneumonia. All the soft tissues of the posterior pharynx, posterior nares and mouth were covered with a dirty, blackish, soft tissue, hardly firm enough to be called a membrane. Larynx and epiglottis showed the same accumulation, but no distinct membrane. Trachea normal, but slightly congested. Brain: weight, 910 gm. normal. Heart: weight, 50 gm. Valves and cavities normal. Anatomical diagnosis: acute, rapidly spreading necrosis of soft tissues of upper and lower jaw and cheek, with necrosis of the inferior and superior maxillary bones at the margin, and with necrosis of turbinate bones and vomer, necrosis of the soft tissues of the nose, palate, pharynx, uvula and tonsils, purulent fluid in the antrum of Highmore, acute suppurative inflammation of the left middle ear and mastoid process, acute purulent bronchitis and purulent broncho-pneumonia of both lungs, acute general lymphatic hyperplasia, acute splenitis, acute parenchymatous degeneration of liver and kidneys. Cultures: necrotic areas of soft tissues of upper jaw and lower lip showed a variety of organisms among which were streptococci, staphylococcus albus, colon bacillus, and a few Klebs-Löffler bacilli. The trachea showed a variety of organisms, few streptococci, staphylococcus aureus, but no Klebs-Löffler bacilli; right lung, lower lobe, few streptococci, and a few Klebs-Löffler bacilli; right lung, middle lobe, many streptococci, few Klebs-Löffler bacilli; left lung, lower lobe, negative; liver, few Klebs-Löffler bacilli and colon bacillus; spleen, very few Klebs-Löffler bacilli; kidney, colon bacillus; right middle ear, few Klebs-Löffler bacilli, and staphylococcus pyogenes aureus; left middle ear, negative. Cover-glass preparations from the pus of the lung showed pus cells, streptococci and a few short bacilli.

Microscopical Examination.—Pneumogastric nerve: in the sections of this nerve there were very marked and extensive degenerative changes. The nerve fibres were much swollen and beaded, most of them showed the presence of a large amount of fat, and others were granular and grayish in color. Very few fibres seemed normal except for a short distance. The axis cylinders were beaded, broken and replaced by fat drops.

The last case is one of sudden death in pneumonia, in which the pneumogastric nerve was examined. This was not a case of diphtheria.

CASE XXV. Boy, age eleven months. Child was admitted to the hospital with pneumonia. He was reported to have had eleven convulsions the day of entrance, which was the first day of the disease. On the ninth day it was noticed only that he seemed restless. Died suddenly.

Autopsy. February 22, 1897. Heart: weight, 65 gm. Valves and cavities normal. Left lung: the lower lobe somewhat firmer than the rest of the lung, of a reddish appearance. Muco-purulent material could be squeezed from the bronchi. Right lung normal. Brain: beneath the pia there was a well marked collection of fluid, the pia being raised from the surface of the brain about eight-tenths of a centimetre. This was more marked on the left side. Brain otherwise was normal. Trachea and esophagus normal. Anatomical diagnosis: last stages of gray hepatization of lower lobe of left lung, edema of brain, acute parenchymatous degeneration of the liver and kidney, acute splenitis, acute general hyperplasia of lymph glands. Cultures: heart blood, lower lobe of left lung, liver, spleen and kidneys, sterile.

Microscopical Examination.—Pneumogastric nerve: sections varied somewhat. In some nerve bundles scarcely a single normal nerve fibre could be seen. In others the degenerated fibres were approximately one-fourth of all the fibres. The degeneration was marked. There was much fat present in the medullary sheaths and in the axis cylinders, and the other fibres were grayish, swollen, granular and beaded.

The specimens from the above cases were treated by Marchi's method. Other sections were stained by hematoxylin and eosin, and in some of the cases with eosin and Unna's alkaline methylene-blue stain.

(To be continued.)

HEART COMPLICATIONS IN DIPHTHERIA.¹

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(Concluded from No. 4, p. 76.)

No. 463. Boy, aged three years. Admitted July 3d, with diphtheria of the nose and throat. Had considerable prostration. Throat was clear within four days, and there were no untoward symptoms until the fifth day, when the pulse fell to 50. Later in the day it was so weak it could not be counted. On the following day had a collapse, after which he was very restless. During the next day, heart-rate 54. Cardiac dulness from nipple line to one and five-tenths centimetres to right of sternum. His extremities were cold and clammy. Died on the eighth day of illness.

Post-mortem examination. Heart enlarged; weight 80 grammes. Right side distended with dark clotted blood. Right auricular appendage distended, and filled with roughened, corrugated, yellowish-white, parietal thrombi, which varied in size from a pin's head up to a bean. They were present also in other cavities. Joints rachitic. In addition to the above there was a chronic passive congestion and a chronic pleurisy.

No. 534. Boy, aged six years. Had measles and pertussis. Admitted August 14th. Ill for one day with nasal

¹ This paper will appear in the Medical and Surgical Reports of the Boston City Hospital for 1898.

and faucial diphtheria. He was quite septic and continued so, and in two days had many ecchymoses on skin. Throat cleared up slowly, and he gradually lost weight. Pulse varied between 130 and 80. On the eleventh day in hospital, heart dulness from one centimetre to right of sternum, to two and five-tenths centimetres to left of nipple line. There was a soft systolic murmur at the apex. Sounds weak and irregular. He vomited several times. Patella and superficial reflexes all diminished. There was almost complete paralysis of the palate. On the following day heart dulness had increased one and five-tenths centimetres to right and left; pulmonic second was accentuated. Pulse could just be felt, and he died on the next day, the sixteenth day of the disease.

Post-mortem examination. Heart slightly enlarged; weight 90 grammes. Muscle pale, with minute whitish specks distinctly seen on endocardium. Valves normal. There was also a diphtheritic rhinitis, tonsillitis, pharyngitis, and an acute general lymphatic hyperplasia.

Pneumogastric nerve showed an extensive degenerative process. There was hardly a single normal nerve fibre. There was much fat throughout the specimen.

Heart muscle. There was an intense and extensive degeneration of the fibres, with much swelling. The fibres had lost their striation and were homogeneous or granular. Throughout the interstitial tissue and near the blood-vessels, and in the myocardium itself, were seen areas of infiltration of lymphoid cells.

No. 561. Girl, aged five and one-half years. Had measles and pertussis. Admitted August 14th, after two days' illness, with septic diphtheria of nose and throat. There were numerous ecchymoses on skin. She was delirious throughout. Urine contained a large trace of albumin. Pulse for four days was about 125, afterwards at 70. Heart-sound weak, but regular, until the last two days, when it was irregular. Area was normal until forty-eight hours before death, then the dulness extended from one centimetre to the right of sternum, to two centimetres outside of nipple line. On the last day the area of dulness had increased two centimetres more on the right and one and five-tenths centimetres on the left. No murmur was heard. Vomited considerably during the last two days. Patella and plantar reflexes absent. Died on the ninth day of illness. No post-mortem examination.

No. 570. Boy, seven years old. Admitted August 21st with a moderately severe attack of diphtheria of nose and throat of three days' continuance. The throat was clear within nine days. He was rather listless from the first. Heart was normal for ten days and on the thirteenth day the area of dulness extended from one and five-tenths centimetres to the right of sternum to three centimetres to the left of nipple line. Pulmonic second was accentuated. A *bruit de galop* heard at apex. The next day the area of dulness had extended two centimetres on both sides. A blowing systolic murmur at apex heard, transmitted into axilla. On the sixteenth day the area of dulness had decreased, and by the eighteenth day was from right sternal border to three centimetres outside of nipple line. The *bruit de galop* was not heard on this day. The pulse varied from 80 to 120, at times irregular and intermittent. The second sound at the apex was reduplicated. Later the irregularity and the reduplication disappeared. For a while the child seemed to be holding his own although he had lost considerable flesh. He had some paralysis of the palatal muscles. On the thirty-fifth day of illness, developed a pneumonia, after this he became again worse, vomited everything taken by mouth; pulse very weak. Died on the forty-fourth day. No post-mortem examination.

No. 723. Boy, aged six years. Admitted February 3d, having been sick five days with diphtheria of nose and throat. For the first week did as well as the average case of diphtheria, save that he appeared drowsy all the time. Began to vomit on the twelfth day. Pulse varied from 110 to 130 and fell to 90 on the twelfth day. The following day heart dulness extended from right sternal border to three centimetres left of nipple line. A loud systolic mur-

mur heard at apex. Died in a collapse on the fifteenth day. No note as to paralysis.

Post-mortem examination. Heart much dilated; weight, 95 grammes. It extended from four centimetres to the left of nipple line to one centimetre beyond the right sternal border and upward to second rib. Left side hypertrophied. On the free edge of the aortic valve were a few vegetations. Besides the above there was an acute splenitis and a hyperplasia of the mesenteric glands.

No. 728. Boy, aged four years. Had measles and pertussis. Admitted February 3d, with nasal and pharyngeal diphtheria after an illness of two days. The child was in a drowsy and stupid condition most of the time. He began to vomit on the sixth day, and continued to do so to the end. Pulse varied between 150 and 100, weak in volume and irregular in time. He gradually failed and died on the tenth day of illness. No record as to paralysis. No post-mortem examination.

Sex.—In these 22 cases of death from various kinds of heart failure, 15 were males and seven were females. The fatality among the males in these cases was higher than among the 800 diphtheria cases where there were 73 males and 48 females that died.

Age.—This was as follows:

Up to 2 years	3 cases.
From 3 to 4 years	5 "
" 4 to 6 "	10 "
" 7 to 8 "	2 "
" 9 to 14 "	2 "

The age varied from one and one-half to fourteen years, the average was five and one-fifth years.

Location of Membrane.—In all but three cases it was in both nose and throat; these exceptions were one each, on tonsils, on tonsils and larynx, and on larynx. In all but four cases a more or less septic odor was noticed, and in two cases there were ecchymoses on the skin. So marked were the usual signs of sepsis in some cases that it was difficult to determine whether the cause of death was sepsis or heart failure; but after all this distinction is superficial, for most likely every case of death from heart trouble is due primarily to a toxic poisoning of the diphtheria bacillus.

Albumin.—In the 15 cases, where the urine was examined there were 11 cases which had one-tenth of one per cent. or more of albumin.

Duration.—The time when the first symptoms appeared, pointing to the heart, was 21 cases as follows:

During first week	13 cases.
" second "	5 "
" third "	2 "
" fourth "	1 case.

The first symptom that called attention to the heart was usually a weak and irregular pulse or a very slow one. It would seem from this, that if at the end of the fourth week a diphtheria patient has had no bradycardia, feeble or arrhythmic pulse there is little possibility of death from cardiac trouble.

The number of days that the patient lived after the appearance of the first symptom varied from less than a day to five weeks; however, all but six died within less than a week.

The lapse of time from the onset of the diphtheria to when death occurred in these cases was:

Within one week	1 case.
" two weeks	8 cases.
" three "	7 "
" four "	2 "
" five "	1 case.
" six "	1 "
" seven "	1 "

The average length of life was about three weeks.

A systolic murmur was noted in eight cases, and all of these had considerable dilatation. Still, the reverse was not always true (No. 561).

The triple sound—cantering rhythm—(*bruit de galop*) was observed in three cases (Nos. 59, 331 and 570). It was also heard in three other cases, not included in this series, two of which were fatal and one is yet in hospital and doing well. The heart was considerably dilated in each of these patients, and the *bruit de galop* was noted in four of the cases when the dilatation was first determined. In both instances (Nos. 59 and 331) where the pneumogastric nerve was examined there were degenerative changes which were moderate in one and marked in the other. In these cases this cantering rhythm was then a most fatal sign.

Collapse occurred eight times, and death followed within two days in every case, and in three instances within an hour or so.

Vomiting was present in 12 of the cases. In other words, this symptom was noted in over half of these patients that died of heart trouble. Since both the heart and stomach are innervated by the same nerve, the pneumogastric, it is readily seen how a degeneration of this nerve, causing cardiac disturbances, would in a like manner produce changes in the function of the stomach, such as emesis.

The frequency of palatal paralysis in this connection is of great interest, since the innervation of the levator palati and of the azygos uvulae is now thought to be by the vagus, through fibres from the nucleus ambiguus.⁶ If this innervation is correct, which the later writers affirm,⁷ it gives an anatomical reason why all patients with palatal palsy should be kept in bed, whether or not the pulse and the heart have showed any untoward symptoms, on account of the danger of a possible sudden appearance of cardiac failure.

A study was made of the weight of the hearts of these cases where there was a post-mortem examination. The table below shows the case number, the age, the duration of the illness in days, the weight in grammes of each, the average weight for the corresponding year, according to the tables in the recent text-books of Roach and Holt, and the increase in weight from those averages:

No.	Age.	Duration.	Weights.	Average.	Increase.
59	5	17	120	72	48
63	3	29	120	65	55
79	3	16	63	65	0
105	5	15	140	70	70
325	6	43	115	75	40
331	8	21	155	100	55
363	6	10	105	75	30
369	5	21	115	72	43
400	2	9	75	55	20
463	3	8	80	65	15
514	6	11	90	75	15
723	6	15	95	75	20

In every case there was an increase of 15 grammes or more save in one case. In seven it was 30 grammes or more. The average increase was 36 grammes. As a rule, this increase in weight was greater, the longer the duration of the disease.

Similar tables were constructed for the cases that died of sepsis and pulmonary complications, as extension of membrane into bronchi and broncho-pneu-

⁶ Kraus (in the recently published part of Nothnagel Specielle Pathologie und Therapie, vol. xvi., p. 106) gives the above nerve supply of the palate.

⁷ For the literature on this subject see Dr. J. J. Thomas's paper on The Innervation of the Soft Palate, in the Medical and Surgical Report of the Boston City Hospital, 1896, Seventh Series, p. 171.

monia. Here the increase, eliminating adults as some of them had chronic heart disease, was 11 grammes. In other words, the hearts of these diphtheria cases that died of cardiac complications showed a greater weight than those that died of pulmonary complications. Whether this increase in weight is due to edema, the infiltration of new cells in the heart muscle, or possibly to the formation of new fibres, must be settled by the microscopic findings.

Cardiac thrombi were noted in four cases out of 72 that came to post-mortem examination. In three cases (369, 400 and 463) the thrombi played, apparently, an important part in the fatal result. Death was sudden in no case, but came on slowly, in one to three days. In these cases the pulse was weak in all, becoming imperceptible some hours before death. In one case (463) the rate was as low as 54 the day before death. In another (400) it was 200. Three of the four had a systolic murmur at the apex. The patients were all cyanotic, and had cold extremities, covered with more or less cold perspiration. The location of the thrombi were three times in the auricular appendages and twice in the left ventricle. The formation of these thrombi is explained most probably by the normally slow circulation in the auricular appendages which, in these cases, is more sluggish on account of the weak cardiac action. Another possible explanation is that the areas of degeneration that are found in the endocardium become foci for the formation of thrombi.

No. 79 is of particular interest, as it gives a reason for some of the sudden deaths that occur in intubation cases which are, naturally enough, supposed to be due to some error in the technique of the operation of intubation or extubation. In this case there can be little doubt that the degenerative changes in the nerve was primarily the cause of death, and the sudden coughing up of the tube called upon the heart for an extra and an impossible task. It is on account of this condition of the heart why extreme care has to be used in performing any operation upon a child that has been sick for some time with diphtheria, since it requires only the slightest shock or struggle on the part of the patient to so affect the heart that death is the result.

Degenerative changes in the pneumogastric nerve of more or less severity was observed in every cardiac case where a microscopical examination was made. And, in the three cases where sections were made of the medulla some degeneration of the fibres was noted, although no changes in the nerve cells could be demonstrated by the method of staining used. It is to be regretted that the condition of the myocardium is not known in all cases. In the one examined extreme changes were observed.

The cause of these various heart complications in diphtheria, it would seem, is most probably due to the toxic action of the potomaines or the toxalbumins generated by the Klebs-Löffler bacillus. These poisonous substances act on the central and peripheral nervous system, producing functional and degenerative changes in the nuclei and the nerve fibres that innervate the heart. These same toxic agents affect also the myocardium, causing various changes, while the nerve supply may, in some instances, be uninjured.⁸

⁸ For a recent review of the literature of the histology of toxalbumin intoxication, see Dr. Simon Flexner's paper on "The Pathology of Toxalbumin Intoxication," Johns Hopkins Hospital Reports, vol. vi, p. 259. 1897.

CONCLUSIONS.

(1) A rapid pulse-rate in diphtheria is to be dreaded. Death usually results when it exceeds 150.

(2) A slow pulse—60 in young children—is a sign often of serious heart trouble.

(3) Irregularities in the pulse occur in about ten per cent. of the diphtheria cases, and are generally significant of cardiac complications.

(4) A systolic murmur at the apex is heard in about one case in ten, and its prognostic value depends upon the nature of the cause.

(5) A *bruit de galop* in diphtheria is a most fatal sign.

(6) After four weeks, with no heart symptoms in diphtheria, there is little probability of subsequent cardiac trouble in the convalescence.

(7) All diphtheria patients who have tachycardia, bradycardia, irregular or weak pulse, a systolic murmur at the apex, vomiting or any paralysis—especially palatal—should be kept quiet in bed.

(8) The most important element in the treatment consists in absolute rest in bed.

(9) The vagus nerve in the fatal cases always had some evidence of degenerative changes. The weight of the heart was increased.

(10) The cause of death is usually from cardiac thrombi, dilatation or paralysis, produced most probably by the toxin of the diphtheria bacillus.

I wish here to thank those who have aided me in this paper, and especially my teacher, the resident physician, Dr. John H. McCollom, who has so kindly instructed me concerning diphtheria during the past year.

THE AMBULATORY TREATMENT OF FRACTURES.

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By the ambulatory treatment of fractures of the lower extremity is understood a method of treatment which permits the immediate and continued use of the injured limb as a means of locomotion.

Orthopedic surgeons as early as 1878 conceived the idea of allowing a patient with a fracture of the thigh or of the leg to walk about by means of apparatus.

Thomas, of Liverpool, and Dowbrowski used the Thomas knee-splint in the treatment of fractures certainly as early as the year 1881 or 1882.

Krause,¹ a German surgeon, published in 1891 the first account of the treatment of fractures of the bones of the leg in walking patients. Krause demonstrated that plaster-of-Paris could be used as a splint in fractures of the leg and in transverse fractures of the thigh.

Korsch² in 1893 presented a paper to the German Surgical Congress demonstrating that compound fractures of the leg and fractures of the thigh may be treated with plaster-of-Paris splints and early use. Korsch makes extension in a thigh fracture by applying the plaster while traction is maintained by an assistant directly to the skin, snugly to the malleoli, the dorsum of the foot and the heel. A padded ring is incorporated into the upper limit of the plaster splint around the thigh, which presses against the tuber-ischii

¹ Deutsche med. Woch., 1891, No. 13.

² Berliner klin. Woch., No. 2.

and thus accomplishes counter-extension. Korsch's cases were treated in Bardeleben's clinic.

Bruns,³ of Tübingen, in 1893 described a splint for use in these cases of fracture of the leg and thigh.

Dollinger,⁴ of Buda-Pesth, in 1893 described a splint for the ambulant treatment of fractures of both bones of the leg and reported three cases. Dollinger's method of applying the plaster-of-Paris splint is the one generally used wherever the ambulatory treatment is employed. The method will be described presently.

Warbasse,⁵ at the Methodist Episcopal Hospital of Brooklyn, N. Y., in 1893, was the first in this country to systematically adopt Dollinger's method.

Warbasse reports six cases — all in young adults.

Bardeleben⁶ reported in 1894 116 cases treated with walking splints. There were 89 fractures of the leg complicated and uncomplicated, five fractures of the patella, 22 fractures of the thigh, five of which were compound, three cases of osteotomy for genu valgum.

Bardeleben lays down the following law: It is of the greatest advantage to the patient that such a dressing can be applied to a broken leg that he can bear the weight of the body upon it and walk about; but such a method of treatment should be applied only under medical supervision, and with the most careful consideration of complications which might arise.

Korsch⁷ presented to the German Surgical Congress in 1894 seven cases, three of the thigh and four of the leg.

Albers⁸ in 1894 reported 78 cases (56 of the leg, five of the patella, 16 of the thigh, and one of the leg and thigh) treated by the ambulatory method. These are some of the observations made by him. He seems to be a little more cautious than other Germans in this matter. He says that when great pain is present it is best to employ injections of morphine. Elevation of the limb will often reduce the swelling; when this does not suffice the bandage must be removed. Severe local pain from pressure indicates the necessity for cutting a fenestrum. The first attempt at walking should be made on the day following the application of the cast. A crutch and cane are used at first; later two canes are employed; and, finally, some patients walk without any support at all.

The report made by Albers upon fractures of the patella is so astonishing and so contrary to general experience here in Boston that I report what he says upon the subject:

In cases of fracture of the patella a plaster bandage is applied from the malleoli to within three inches of the tuber ischii. This cast has a big fenestrum over the knee, through which the patella appears. For the protection of the fracture a strip of iron band, running three or four centimetres in front of the knee, is incorporated in the plaster above and below. The fragments of the patella are drawn together with adhesive plaster. When there is not much fluid in the joint, the dressing is applied immediately. Otherwise, the fluid is drawn off by aspiration, and the limb treated on the Watson splint for a week. Five patients were thus treated by Albers, the separation representing one and a half to three and a half centimetres. From three to seven weeks were required in obtaining a firm union. All of the patients walked with this splint, and after its removal without support; and after a few

weeks were able to bend the knee ninety degrees. The confinement in the hospital averaged fifty-two days. It would be instructive to know the subsequent history of these patella fractures!

Kranse⁹ in 1894 reported 72 cases treated. He is of the opinion that the ambulant treatment in plaster splints must be limited principally to fractures and osteotomies in the region of the malleoli, the leg and the lower end of the thigh. He does not employ the method in the handling of oblique fractures of the femur and fractures of the neck of the same.

Bardeleben¹⁰ writes again in 1895, reporting up to that date 181 cases treated by the ambulant method. This last report of course included the 116 cases of the previous record.

Dr. Edwin Martin, before the Surgical Section of the College of Physicians of Philadelphia on December, 1895, reported 20 cases of fracture of the leg treated by this method.

Dr. E. S. Pilcher,¹¹ of Brooklyn, in whose wards Warbasse worked, reported to the American Surgical Association the 20 or more cases treated by him in which the results were satisfactory.

N. P. Dandridge,¹² of Cincinnati, has used the method in eight cases. In most of the cases pain was complained of when weight was borne on the foot. In a feeble woman it was necessary to remove the cast in the third week. In the case of a man — a compound fracture of the leg — after walking two weeks he had so much pain that the plaster was removed. Redness and swelling were great at the seat of the fracture, and there was much swelling over the internal malleolus.

Woodbury¹³ introduced the method at Roosevelt Hospital, New York City, and Fiske has reported cases treated at that clinic which were vouched for by Hartley, of New York.

Roberts,¹⁴ of Philadelphia, and George Woolsey,¹⁵ of New York, have used the method in selected cases with satisfaction.

A. T. Cabot,¹⁶ of Boston, has used recently in several fractures of the femur Taylor's long hip-splint.

E. H. Bradford,¹⁷ of Boston, has treated cases of fracture at the Children's Hospital by a modified Thomas knee-splint, combined with and without plaster-of-Paris splinting.

The method of application of the plaster splint in the ambulatory treatment of fractures of the tibia and fibula or fibula alone is as follows (this is practically the method of Dollinger):

First the reduction of the fracture and cleansing of the skin of the leg with soap and water. Then with the foot fixed at a right angle to the leg, a flannel bandage is smoothly and evenly applied from the toes to just above the knee. This bandage is made to include beneath the sole of the foot a padding of ten or fifteen layers of cotton wadding, making a pad about three-fourths of an inch thick, when it is compressed by the moderate pressure of the flannel bandage. Over this is now applied the plaster bandage from the base of the toes to just above the knee, especial care being taken that the application is made smoothly and somewhat more firmly than is the custom in the ordinary plaster cast. The layers of the bandage should be well rubbed as it is applied, with the view of ob-

³ Beiträge zur klin. Chirurgie, Bd. x, Heft 2, 18.

⁴ Centralblatt für Chirurgie, 1893, No. 48.

⁵ Transactions Brooklyn Surgical Society, October, 1891.

⁶ Verhand. der Deutschen Gesellschaft für Chirurgie, XXIII Kongress, 1894.

⁷ Verhand. der Deutschen Gesellschaft für Chirurgie, XXIII Kongress, 1894.

⁸ Ibid.

⁹ Verhandlungen der Deutschen Gesellschaft für Chirurgie, XXIII Kongress, 1894.

¹⁰ Ibid.

¹¹ Transactions American Surgical Association, vol. xiv, 1896.

¹² Ibid.

¹³ New York Medical Record, 1897.

¹⁴ Transactions American Surgical Association, xiv, 1896.

¹⁵ New York Medical Record, 1897.

¹⁶ Ibid.

¹⁷ Ibid.

taining the greatest amount of firmness with the smallest amount of material. The sole is strengthened by incorporating in with the circular turns an extra thickness composed of ten or twelve layers of bandage well rubbed together, and extending longitudinally along the sole. The bandage is applied especially firmly about the enlarged upper end of the tibia, and here it is made somewhat thicker. As it dries it may be pressed in so as to conform more closely to the leg just below the heads of the tibia and fibula. The assistant, who stands at the foot of the table and supports the leg, makes such traction or pressure as is required to keep the fragments in proper position while the plaster is being applied. The operation requires about twenty minutes, and by the time the last bandage is applied the cast should be fairly hard.

It is seen that when this cast has become hardened the leg is suspended. When the patient steps upon the sole of the plaster cast, the thickness of the cotton beneath the foot separates the sole of the foot so far from the sole of the cast that the foot hangs suspended in its plaster shoe. Thus the weight of the body which would come upon the foot is borne by the diverging surfaces of the leg above the ankle. The chief of these is the strong head of the tibia. A lesser rôle is played by the head of the fibula, and the tapering calf in muscular subjects.

In thigh fractures the use of the long Taylor hip-splint, together with a high sole upon the well foot, and crutches is generally accepted as the best method of treatment.

Those advocating this treatment suggest its application to fractures of the leg below the knee, both simple and compound, and in fractures of the lower end of the femur.

The apparatus is not to be applied for three or four days if there is much primary swelling. Great care is to be exercised in the continuance of its use, regard being had to edema of the toes and pain.

The advantages claimed for the ambulatory method are:

The time spent by the patient in the hospital is less than by other methods.

Union in the fracture occurs at an earlier date.

There is less atrophy of the muscles of the thigh and leg.

There is less stiffness of neighboring joints.

The muscular weakness is less.

The functional usefulness of the whole leg is greater.

The primary swelling associated with a fracture is often avoided, and always less than by the older methods.

The secondary edema is much less.

The amount of the callus is less.

In drunkards and those with a tendency to delirium tremens this liability is greatly diminished.

In old people the danger of a hypostatic pneumonia is lessened.

There is greater general comfort by this method than by any other. The general health is conserved; whereas by the old method the appetite is variable, sleep is troubled, the bowels are constipated, and general discomfort prevails.

Time is saved to the business man by this method — he having to give up but about seven days to a fracture of the leg.

These are the advantages claimed for the ambulatory treatment by its advocates.

All of the facts regarding the ambulatory treatment of fractures of the lower extremity are herewith presented. I have purposely avoided relating the details of each man's experience because those who are interested may consult the original articles from the

references here given; such details are not particularly instructive, consisting chiefly of the accounts of modifications of apparatus.

Before this method can be adopted generally and in hospital treatment it must be demonstrated that it is safe and that it offers chances of better functional results than are obtained under present methods, and that the minor advantages claimed for it by ardent German advocates are real and not imaginary.

The first great advantage of the method is stated to be that the stay in the hospital and the time away from one's occupation are much lessened. Regarding this point I have had, through the interest of Dr. Washburn (former house surgeon at the Massachusetts General Hospital), three series of cases examined.

The Massachusetts General Hospital surgical records were consulted at these periods:

(1) Before the use of plaster-of-Paris, that is, previous to 1865.

(2) Just at the beginning of the use of plaster-of-Paris as a splint for fracture.

(3) In 1895, 1896 and 1897.

Thirty-five cases of fracture of the tibia and fibula were tabulated from each period; these were unselected cases.

The duration of the average time spent in the hospital in the first period was 46 days; in the second period it was 45 days; at the present time it is 16 days. In the second period plasters were applied to fractured legs on an average at about the twenty-eighth day; at the present time on the fourteenth day. In other words, there has been since the introduction of the plaster splint a gradually shorter detention in the hospital, as surgeons have come to recognize the safety of an earlier application of a fixed dressing. On an average, patients with fracture of the leg are detained in the hospital to-day but 16 days. The very great saving to the hospital in time by the ambulatory treatment does not therefore appear.

I imagine that at the Boston City Hospital, where it is the safe and invariable custom to split laterally the plaster splint before discharging the patient from the ward, the duration of the time spent in the hospital may average a little less than the time stated above.

It is impossible to consider the statements made with regard to rapidity of healing, sign of callus, absence of muscular atrophy and absence of rigidity of joints, because there are no facts available for the purpose.

The advantages stated are based, most of them, upon the personal impressions of the surgeon in charge; such observations are untrustworthy.

Krause presents a table from Paul Bruns containing the average periods of healing in a series of fractures, and he compares these periods with his own fracture cases, treated by the ambulant method. This is the only attempted scientific statement of observation on this important point. Krause concludes from a study of these tables that, "in the treatment of fractures of the middle and upper thirds of the leg, the ambulant method shows a great advantage in the period of consolidation as well as in the time when the patient can return to work. It seems that the higher up the fracture is in the leg the sooner a cure is effected by the ambulant method of treatment."

In reviewing carefully the literature I am unable to discover any advantage in the results of the ambula-

tory treatment over the present modern treatment of fractures of the leg.

The present commonly accepted method of treating *uncomplicated* fractures of the leg by allowing the initial swelling to subside, by the application of a plaster-of-Paris splint, later by the splitting of this plaster splint and re-applying it with a retentive bandage, by permitting the patient to be up and about on crutches and the well leg at the end of two weeks, by the subsequent removal of the plaster splint; by passive and active motion and massage to the knee- and ankle-joints; by the gradual bearing of all the weight upon the fractured bone, — this roughly outlined present treatment is satisfactory.

The present commonly accepted method of treating fractures of the femur by long rest in the horizontal position, with extension by weight and pulley, is not satisfactory. The protracted stay in bed is undesirable. The use of the Taylor hip-splint in the treatment of this fracture, assisted by coaptation splints or plaster-of-Paris is of distinct value.

Two fundamental principles in the treatment of fractures must be constantly in mind when new methods are being discussed, namely, the reduction and the absolute immobilization of the fractured bone.

Theoretically and practically the ambulatory treatment does not perfectly immobilize; therefore I believe it cannot pre-eminently succeed as a means of treatment. However, in certain carefully selected cases of fracture below the knee, particularly of the fibula, if under the care of a competent and skilful surgeon, it is possible to conceive of the ambulatory method being used without doing harm.

The method in general seems to me to be unsurgical. Embolism, both of fat and of blood, and the likelihood of pressure sores in the use of the plaster splint are dangers to be considered. It is wise for the injured limb to rest while the reparative process is commencing. Muscular relaxation is desirable in the treatment of fractures. The very admission by the advocates of the ambulatory treatment that muscular contractions take place is reason enough for supposing that complete immobilization is not obtained by this method.

A consideration of the ambulatory treatment of fractures will have served a positive good if it shall lead to a more careful use of the plaster-of-Paris splint in fractures of the leg and to a proper application of the long hip-splint or its equivalent in fractures of the thigh and to the early use of crutches and the high sole on the well foot in both of these lesions.

SOME MODIFICATIONS OF THE OPERATION FOR CLOSING CONGENITAL FISSURES OF THE PALATE.¹

BY THOMAS FILLEBROWN, M.D., D.M.D.

SINCE Langenbeck devised his operation for cleft palate, no considerable improvement or change has obtained general approval and adoption.

During the past few years some changes in methods have been proposed which I believe will come into general use.

These I propose to describe in this paper.

¹ Read before the Surgical Section of the Suffolk District Medical Society, January 5, 1896.

In the operation as I shall describe it, I have combined the more recent suggestions of others with some modifications of my own, which seem to me to make on the whole a radically different operation from the one generally performed, and producing radically different results as to the size and action of the arch of the palate.

Upon these methods I ask the scientific judgment of this body and of the profession.

The essential of Langenbeck's operation for cleft of the hard palate is the lateral incision along near the edge of the alveolar process, and a complete freeing of the flaps from the anterior point of the cleft to the last molar. This so lessens the blood-supply that sloughing and non-union are of such frequent occurrence as to be considered almost inevitable.

Another point is the supposed necessity of severing the tensor muscles of the palate to relieve the strain and allow the parts to be approximated. This renders the palate much less flexible than natural, and limits its range of motion.

A third point is the practice of dividing the pillars of the fauces to allow the soft palate to be united. This increases the height and width of the arch of the soft palate, and makes it just so much more difficult for the tongue to meet the arch and close the passage into the nose.

I hope to show that the lateral incision of the hard palate may be avoided, the nutrition preserved, and primary union uniformly obtained; that the tensor muscles need not be divided, and the activity and flexibility of the palate not restricted by the cicatricial tissue and the consequent disability of the muscles; also, that the necessity for cutting the pillars of the fauces does not exist; and that the arch may be contracted instead of enlarged, and thus the possibility of perfect articulation made more probable.

The plan I shall describe makes it easy to close a full cleft of the hard and soft palates at one operation, and in much less time than is usually occupied in doing this operation, seventy minutes being about the average time required.

I have adopted the use of wire sutures passing through pure silver disks to approximate the parts and bear the strain, as shown in the figures. I use the silver on account of its germicidal qualities. It better serves the same purpose for which the quill was used so long ago.

The use of a beaded suture for holding the flaps in palatoplasty was described by Dr. David Prince, in 1883. A lead disk has also been used by Dr. T. W. Brophy.

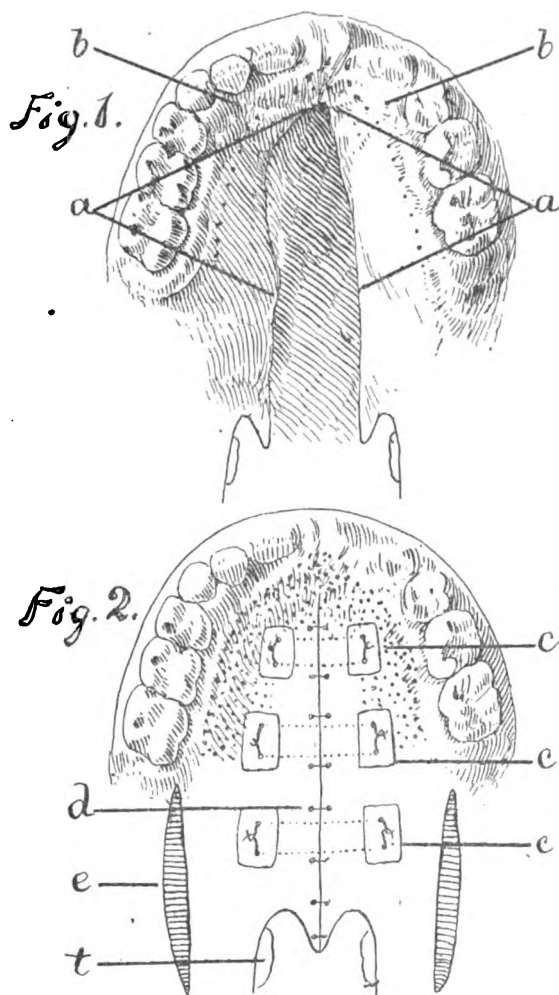
To relieve the tension in the soft palate I make lateral incisions external to the tonsils, which have not, to my knowledge, before been attempted or described. I have discarded the use of a guard-plate. The wire suture and disks take all the strain and successfully counteract the muscular action and hold the line of union immovable, and thus a guard-plate is made unnecessary.

The stability of the wire sutures was well tested in one of my cases, which proved to be a bleeder. Nine hours after the operation I was obliged to plug both nares and hold a compress in the mouth for more than two hours to stop the hemorrhage, yet there was no giving way of the stitches.

I have also found that only good results follow syringing out the mouth and nose. Now I use a fountain syringe and freely wash out these parts at least

twice a day. In case of my hemorrhagic patient, I found it invaluable in preventing septic infection.

For my convenience in doing the operation I have constructed an apparatus for maintaining anesthesia without interfering with operations in the mouth. This I described in 1893. It is on the plan of the "Junker System." By the use of this no time is lost waiting for anesthesia. This apparatus I show here to-night. It consists of a bellows, a wash-bottle containing ether, and a tube reaching to the mouth of the patient. Air is blown over the ether in the bottle and becomes charged with ether vapor, and is discharged from a small tube into the mouth of the patient. It is amply sufficient to keep the average patient fully anesthetized.



My success in my last eight consecutive operations for cleft of the soft palate, the last three cases involving both hard and soft palates, makes it seem that I may see the fruition of a hope I have indulged for several years, namely, that the operation for closing the cleft of the palate, hard or soft, would be made as uniformly successful as other surgical operations of equal importance.

Fig. 1 shows the mouth of a patient, female, six years old. I operated on this patient at a clinic before the Harvard Dental Alumni in June, 1897. The fissure was fully seven-eighths of an inch wide. Fig. 2 shows the operation as I performed it. I commenced

my incisions at *a, a*, Fig. 1, and with a hoe-shaped periosteum knife dissected off the tissue from the hard palate to the dotted lines *b, b*, Fig. 1. After paring the edges of the flaps I inserted silver sutures running above the flaps, and passed them through the palate and through pure silver disks *c, c, c*, Fig. 2, twisting the ends and making tension which fully approximated the edges. To fully relieve the strain upon the soft palate, and also to allow contraction of the arch, I made the incision *e*, Fig. 2, from the tuberosity to opposite the under molar. I cut through the mucous membrane with a scalpel and then separated the deeper tissues with a smooth dissector, in order to avoid injuring important vessels.

The edges of the cleft now held in close approximation were brought more accurately together by fine silk sutures *d*, as shown in Fig. 2. I thus avoided the lateral incision in the hard palate, the separating of the tensor muscles, the cutting of the pillars of the fauces, and approximated the tonsils so as to lessen the arch and allow the soft palate to retract to a considerable extent.

Should I find it necessary in any case to further widen the flaps at the junction of the hard and soft palate, I should make two or more buttonhole incisions opposite the tuberosity, as shown in one of the models of a mouth which I will pass around. The buttonholes will readily fill up by granulation. By this plan the extent of the incision is much reduced, the loss of blood lessened and the nutrition of the parts preserved.

Now, admitting that the surgical operation is improved and better surgical results obtained, a pertinent question presents itself: Are the practical physiological results such as offer encouragement for its use?

The advantage gained by surgical operations as to the health of the parts, the improvement in deglutition and in the self-respect of the patient I shall presume to be admitted.

But, it is asked, Are not better results obtained with an artificial obturator, so far as speech is concerned?

One thing I think is certain, obturators improve nearly every case, but they produce perfect articulation in only a small per cent. of cases, and my observation justifies the opinion that successful surgical operations give satisfactory results in quite as large a proportion of cases, to say the least, as the obturator.

When deferred until after the proper age to learn to talk, neither plan will succeed in giving perfect speech in even a majority of cases. The tongue and lips have each more to do with articulation than has the palate, and if the proper use of these organs has not been acquired before the age of six, eight or ten years, it is impossible for many to acquire even tolerable command of them for speech.

It is possible for some adults to learn to speak a foreign language quite perfectly, yet very few are able to rid themselves of a marked accent. The deformed child has acquired his own method of pronunciation; and learning to talk, after a correction of the deformity by either surgical or artificial means, is like learning to speak a foreign tongue.

For instance, one patient, six years old, after his palate was closed by operation, could readily close his lips if asked to do so, but had not the least power to close them to pronounce the words "papa" or "mamma." While another patient, twenty-four years old, with a cleft of the palate reaching forward to opposite the first molar could, before an operation, by excessive ac-

tion of the lips and tongue articulate every sound of the alphabet, and a year after his palate was closed, had almost perfect speech. He is now doing business as a jeweller, and customers, strangers to him, have no suspicion that his speech was ever imperfect.

A girl, nine years old, upon whose mouth I operated at the Harvard Dental School in 1892, had a congenital hare-lip, and a wide fissure of the mouth extending from the uvula through the alveolar ridge. At twelve years of age she spoke so plain that a hundred members of the New England Dental Society pronounced her speech perfect.

Last March I completed the closure of a fissure for a boy seven years old. Last week, only eight months after the operation, he repeated the Lord's Prayer with perfect distinctness. I took a phonographic record, which I will reproduce here a little later.

I have had but one patient that has not shown such marked improvement as to be readily understood. That one is handicapped by excessive diffidence and by having a sister to depend on; but as she is quite young I expect her to speak well before the age suitable for an obturator.

The surgical operation should be performed before the child attempts to talk. In such cases we shall be quite sure of perfect speech, and the patient be spared the knowledge of any deformity.

I have made many obturators, and have had my share of successes, and for many years believed the obturator was the only suitable remedy for the deformity; but later experiences have changed my mind.

A young lady, now seventeen years old, has lived for the past eight years in Boston, who was operated upon by Dr. S. C. Gordon when about three and one-half years of age for cleft of both hard and soft palate. Her most intimate friends and associates in Boston have not suspected she ever had any trouble whatever. Her speech is perfect.

I have met a young man, operated on by Dr. C. B. Porter, who shows that in a short time he will overcome every vestige of his former disability.

These operations were done by the ordinary methods.

The phonographic records which I here reproduce upon the graphophone I think bear out my statements.

If such successes are the results of the ordinary methods of operating, it is reasonable to presume that equal success may be obtained in a much wider range of cases when methods of operating are adopted which preserve the functional activity of all the parts.

EARLY DIAGNOSIS OF A CASE OF CANCER OF THE LARYNX; REMOVAL OF GROWTH BY THYROTOMY; RECOVERY.¹

BY J. PAYSON CLARK, M.D., AND FRANCIS B. HARRINGTON, M.D.

ON account of the comparative rarity of carcinoma of the larynx it is of special importance that every case operated on should be reported, whether the result is successful or not, so that the data the surgeon has to guide him in the treatment of any given case may be as comprehensive as possible. As will be shown later on, one of the chief requisites for success in the treatment of these cases is their early recognition. For this reason every physician should be familiar

with the symptoms, especially the early ones, which are usually rather insignificant and apt to be neglected by the patient himself, or, if referred to a physician, treated by him with some general remedy for a "cold," only too often without even an attempt at a laryngeal examination.

The earliest symptom, as a rule, is some impairment of the voice, consisting of a slight huskiness or hoarseness which the patient may, at first, attribute to a cold not worth considering and may not, therefore, consult his physician until it has lasted for several weeks or months. Such a history in a man beyond middle life should at once arouse our suspicions. If, on examination, a growth is discovered it is probably malignant. If the growth is on one of the vocal cords this symptom (voice impairment) naturally appears very early in the disease, but if it starts in some other part of the larynx, less intimately connected with phonation, other symptoms may arise before or simultaneously with it. One of these symptoms is dyspnea. This may be caused by the encroachment of the growth on the lumen of the larynx or by the fixation of one cord owing to the involvement of the deeper muscles. The presence of pain depends upon the site of the growth. As a rule, it is not among the early symptoms and may not appear until late in the disease. Dysphagia is absent where the growth is distinctly intra-laryngeal. The presence of this symptom would indicate that some of the outlying structures of the larynx were involved, such as the arytenoids.

Owing to the irritation of the growth the secretion of mucus is somewhat increased. The secretion takes on a purulent character when the growth begins to ulcerate, which it may do very early if so situated, for instance on the edge of the cord, as to be exposed to attrition. When ulceration occurs there begins to be a peculiar musty fetid odor to the breath, which appears to be almost pathognomonic. Hemorrhage, generally slight, may occur as a result of ulceration. Cancerous cachexia appears, as a rule, so late in these cases that it is of little diagnostic value.

In its early stages there is nothing absolutely characteristic about the appearance of a laryngeal carcinoma. While superficially it may have very much the appearance of a small papilloma or fibroma it may be all the time extending its treacherous growth into the healthy surrounding tissues, and this benign appearance of the external growth may extend to the microscopic section of a piece removed for examination. One should not be satisfied with the first microscopic report of a suspicious growth if it is negative. Often the examination of a second piece from perhaps a little deeper portion of the growth will disclose the characteristic cancerous structure. It seems to me that this fact may explain many if not all of those cases in which a malignant degeneration of a benign growth is reported to have taken place.

To summarize: a unilateral laryngeal growth in a person beyond middle life should always be regarded with suspicion, and a diagnosis made as soon as possible.

The prognosis, without operation, is fatal in from two to three years, depending on the nature of the cancerous growth. The prognosis after treatment depends largely on the time when the operation is done; the smaller the growth the less radical the operation required and the greater the probability of complete removal.

¹ Read before the Surgical Section of the Suffolk District Medical Society, January 5, 1898.

In this connection a recent report of Czwieltzer,² of thirteen cases of laryngectomy from the clinic of Mikulicz, is interesting. Of these cases nine were partial, two of half the larynx and two total. Five cases, all of partial resection, were living at the time of this report, being six weeks, a year and a half, two and a half years, five years, and eight and a half years respectively, since the operation. The writer goes on to say: "As compared with earlier statistics, there is some improvement in recent years due to two causes, that is, better collection of cases, and improvement in operative technique. The proportion of partial resections is larger, showing that the operation is done earlier than formerly, and there is a falling off of total extirpations owing to the almost constant fatal result following operation." Tracheotomy is done at the time of operation, using Trendelenburg's or Hahn's tubes. Rose's position has not given satisfactory results either during or after operation. The functional result depends largely upon the amount of tissue removed. In cases with two-thirds or more of the larynx remaining a fairly normal function may be expected if the tracheotomy tube is removed fairly early and care taken to prevent cicatricial contraction."

Five of Mikulicz's cases were able to speak audibly but with a harsh, rough voice. The artificial larynx seems to have fallen into disuse.

As regards intra-laryngeal removal of these growths, something should be said, although most writers on this subject are of the opinion that only through an external opening can a thorough removal of a malignant laryngeal growth be accomplished. This belief seems, at first, too well founded to admit of argument, especially when one stops to consider the difficulties of any intra-laryngeal operation, even if the patient is tolerant of intra-laryngeal instrumentation; the removal of the growth piecemeal, the rapid obscuring of the operative field by hemorrhage, necessitating frequent sittings, the difficulty of ascertaining when one has thoroughly removed the growth and invaded healthy tissue.

And yet the intra-laryngeal operation has one staunch and able supporter whose opinion, based as it is on five successful cases, demands consideration. B. Fraenkel³ reports nine cases operated on by himself by this method with five cures, thirteen years, ten years, nine years, six years and a year and a half respectively since operation. One case was cured only after many recurrences and one gland was removed. One case was not heard from after operation. Two cases required laryngotomy later. Of these one died of apoplexy, but with larynx sound, two years after the first operation, and one from recurrence in glands four years after the first operation. This patient did not return for frequent observation, as requested. One patient died of cancer of larynx after tracheotomy (having refused any other external operation) four years after the first intra-laryngeal operation.

From the cases collected by W. Hansberg⁴ and J. Sendziak⁵ there appear to be in all 30 cases in which other writers have undertaken the intra-laryngeal treatment. Subtracting from these five cases in which the intra-laryngeal operation was done simply as a palliative measure and three in which the epiglottis was amputated without external operation, there re-

main 22 cases. All of these are not equally valuable, because in some attempts were made to remove very large intra-laryngeal tumors. Of these 22 cases, nevertheless, there were twelve cures. "Surely a brilliant result."

Fraenkel concludes that the operation is absolutely without danger, and that the results surpass all other operations in that the patient keeps not only his larynx but a good voice, which is often so nearly normal as to escape notice; also, that it is possible by this method to remove all diseased tissue. If the growth is found too extensive for intra-laryngeal operation, then one can proceed to an extra-laryngeal. There is nothing in the intra-laryngeal operation which hinders a later laryngotomy if it becomes necessary. After the intra-laryngeal as well as after every operation for removal of laryngeal cancer the patient's larynx should be examined at frequent intervals. The favorable time for an external operation should not be allowed to pass if the other proves inefficient. Fraenkel uses cutting forceps, curettes and other instruments, but not the galvano-cautery.

I have never attempted intra-laryngeal extirpation of a cancerous growth, deeming it impracticable and a waste of valuable time. After this favorable report of Fraenkel's, however, I shall be tempted to try it in a favorable case.

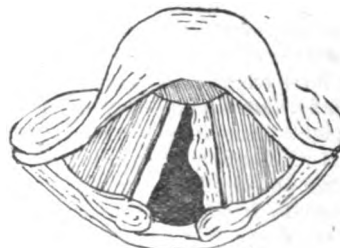


Fig-1.

The case which is the subject of this report is as follows: A. L., aged fifty-nine, married, superintendent in a cotton mill, was first seen by me on December 15, 1896. He then said that two and a half years ago he had been hoarse for two months, but that the hoarseness of which he now complained began fourteen months ago and had gradually increased. He had no pain and complained of no other symptom. His general health was good. He is a stout man of medium height. His face is pale but there is no cachexia. He does not drink or smoke. Examination showed an irregular thickening (Fig. 1) of the left vocal cord extending the whole length of the cord. The thickened cord had a grayish-red appearance, somewhat paler than the mucous membrane of the ventricular band. The right cord was only slightly injected. There was no apparent limitation of motion in the left side of larynx. Although there was no history or other evidence of syphilis the patient was put on to iodide of potash.

An attempt to remove a piece of the growth for examination failed because the instrument was not long enough. On December 16th, with longer cutting forceps I removed two pieces from the inner border of the left vocal cord leaving free border of cord even. Hemorrhage was slight.

On December 18th I first noticed the peculiar musty odor to the breath. There was a superficial ulceration where the piece had been removed.

² Beiträge zur Klin. Chirurgie, 1896, Band xvii, Heft 2, p. 447.

³ Archiv. f. Laryngol. u. Rhinol., Berlin, 1897, vi, 361-374.

⁴ Archiv. f. Laryngol., Band 5, p. 184.

⁵ Die bösartigen Geschwülste des Kehlkopfes, Wiesbaden, 1897.

On December 24th Dr. W. H. Prescott sent me the following report: "The two small bits of tissue which you sent me I have hardened, and the following is the result of the microscopic investigation: The sections are made up of clumps and nests of epithelial cells, with a small amount of fibrous tissue between the collections of cells. There were a few epithelial 'pearls' seen. Diagnosis, epidermoid cancer."

OPERATION.

The operation was performed by Dr. Francis B. Harrington on January 4, 1897.

The patient was in good general health, a very desirable condition for the operation which he was to undergo. Chloroform was used as an anesthetic. It was decided to perform the entire operation at one sitting instead of doing a preliminary tracheotomy. The plan of operation after opening the trachea was to incise the thyroid and, if the extent of the disease demanded, to remove the larynx. If the disease were strictly limited to the soft parts, then only these were to be removed.

An incision was made from above the thyroid cartilage to a point just above the sternum. The anterior aspect of the thyroid and cricoid cartilages, together with the cartilage of the trachea, were clearly exposed. When all the bleeding was controlled the trachea was opened. These cartilages were calcified and were very brittle. In attempting to insert a tampon-canula the rubber was so torn that it was impossible to inflate the rubber bag. The crico-thyroid membrane was then opened, and a packing of gauze was made through this opening above the tube in the trachea. This prevented the escape of blood into the trachea. The thyroid was then cut through in the middle line.

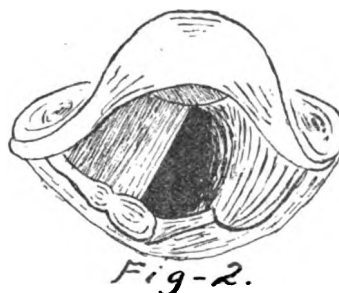
By means of hooks the two wings of the thyroid were separated, and an excellent view of the disease was obtained. The right cord appeared perfectly normal. The left cord appeared to be thickened throughout its anterior two-thirds up to the point of junction with the right cord. The left cord back to its arytenoid was removed with all the muscles and soft parts lying in the left half of the thyroid. In order to insure the removal of all the disease, about one-third of the right cord at the point of union with its mate was also removed.

The disease reached the cartilage in the middle line at the junction of the vocal cord in front. For this reason a small vertical section of both wings of the thyroid was removed in the middle line. There was comparatively little bleeding during this portion of the operation. The patient was operated upon in the ordinary tracheotomy position, as it was found that elevation of the body greatly increased the venous congestion. No attempt to close the wound was made except below the tracheotomy tube. The trachea above the tube, and the larynx, were packed with gauze.

The patient bore the operation well. The after-treatment was one of careful attention to cleanliness and feeding. It was soon found that there was considerable leakage of discharge through the gauze above the tracheotomy tube into the trachea and bronchi, causing troublesome coughing. For this reason a tampon-canula was inserted and worked very satisfactorily. The large opening rendered the dressing of the wound very simple. The gauze was changed every few hours night and day for a week or ten days. The patient was fed for three days by nutritive

enemata. After this a catheter was inserted into the stomach through the mouth and the patient was fed in part in this manner. During the feeding the saliva poured down freely into the wound and would have caused much coughing but for the tampon-canula. At this time, whenever the patient made the attempt to swallow or cough, the two wings of the thyroid would open outward like a double door. This, while uncomfortable to the patient, made it possible to thoroughly inspect and cleanse the interior of the larynx.

At the end of ten days the left arytenoid cartilage was found to be loose and likely to drop off. It was removed. There were some pieces of thyroid cartilage which necrosed and were removed. Gradually



the ability to swallow increased, as the epiglottis accommodated itself to the changed condition. The wound closed rapidly, and in three weeks' time the patient was able to articulate so that he could be heard across the room. He was then using a fenestrated canula. In another week he was able to leave the hospital, the wound being quite healed.

The advantages of this operation, when feasible, over laryngectomy are the lessened mortality and the preservation of the solid lumen of the respiratory canal. Unless a tube is worn after removal of the thyroid cartilage there is danger of stenosis from contraction or closure from valve action of the soft parts. It is my opinion that the wound should be left freely open



after this operation. Asepsis is impossible where there is an opening into the mouth, and cleanliness can best be obtained by having free drainage and an abundance of room for inspection and cleansing procedures.

Examination of the larynx on December 10th showed epiglottis normal, left arytenoid wanting, left ventricular band and vocal cord replaced by a somewhat irregular surface covered by mucous membrane. Right arytenoid, with ventricular band, is freely movable. Right vocal cord absent. Somewhat below the site of the right cord is a prominent mass (granulation tissue?) of a grayish-white appearance. Patient speaks in hoarse whisper.

A laryngeal examination on January 4, 1898, gave much the same appearance except that the granulation

tissue under the right ventricular band had disappeared and the tissue on the left side of the larynx was rather more shrunken (see Fig. 2). On phonation the right ventricular band makes a wide excursion and comes in contact with the left wall of the laryngeal cavity. Meanwhile the cushion of the epiglottis moves towards the back of the larynx, concealing the glottis almost completely (see Fig. 3). The vibration of this ventricular band is probably the source of the voice which, though somewhat rough, is loud enough for all ordinary purposes. The operation has not interfered at all with the act of deglutition, which is normal. The larynx has everywhere a healthy appearance. The patient's general condition is excellent, and he has a more healthy complexion than a year ago.

SCIENTIFIC SPLINTING.¹

BY EDWARD A. TRACY, M.D., BOSTON,
Fellow of the Massachusetts Medical Society.

THE splinting of broken bones dates back beyond the time of Hippocrates. Common-sense indicated its use, tested it, found it good and set its seal of approval upon it. The object of such splinting was to keep the broken limb straight and to protect it from injury while it "knit." To-day, experimental knowledge, gleaned from the kindred sciences of biology, pathology, histology and physiology, teaches that for the repair and regeneration of broken tissues rest is requisite — and that for the speedy and correct reunion of broken bones fixation is needful. This very principle of fixation for fractures is to-day in jeopardy because of a fallacious method of fracture treatment in vogue, especially in the hospitals. I refer to the plaster-of-Paris bandage treatment. Unmodified, a more unscientific treatment for fractures was never exploited. Fixation was sought for by its use, but the fixation gotten was most imperfect. The firmness of the bandage outside the limb was mistakenly taken to represent the condition within. Numberless deformities have been caused by this plaster treatment — deformities that would not exist had the Hippocratic old-fashioned splinting been used. Fixation with plaster-of-Paris bandages, applied in the ordinary way, is a fallacy. How could it be otherwise? With the limb swathed in cotton-batting, itself compressible, with the subsidence of swelling that accompanies fractures, with the tissue atrophy that comes with the non-use of the limb, how can one rationally expect fixation? Should we not expect deformities after such treatment? That such occur even in the practice of surgeons recognized as skilful is not surprising. (See Burrill and Dwight's paper on the plaster-of-Paris treatment of compound fractures, published in the communications of the Massachusetts Medical Society, 1892.) The fact of non-fixation by plaster-of-Paris bandages ought to be universally recognized.

I have said that because of this fallacious plaster-of-Paris treatment the very principle of fixation for fractures was to-day in danger of being questioned. How else explain Champonière's attitude towards fixation, at the Moscow Congress? However, while modern science teaches that rest is necessary for the repair and regeneration of broken tissues, so long will fixation be deemed an essential of all fracture treat-

ment. How can this fixation best be obtained? By a scientific surgical splinting. The requirements of a scientific splinting are, that splints be moulded directly upon the parts treated, that they fit directly upon the skin without padding to destroy their immobilizing properties, that they permit of ready removal so that inspection of the parts may be easy, that they be resilient, and readily re-applied and re-adjusted to the limb, so that the subsidence of swelling and tissue atrophy do not impair their immobilization, and, finally, that they be permeable to the x-rays. Such a splinting is readily gotten by the practitioner intelligently using my wood-fibre splint material. Gummed felt, leather, gutta-percha can also be so used. My wood-fibre material is easily demonstrated superior to those materials, and is therefore advocated in preference to them; but any material that fulfils the requirements above given, of a scientific splinting, has my earnest advocacy. Plaster-of-Paris has not, except when used in the method advised by Roswell Park and Roberts — moulding removal splints on the parts. Theirs is the only scientific way of using plaster-of-Paris. Such plaster splints, however, have not the lightness, the resiliency, the toughness, the cleanliness nor durability of moulded wood-fibre splints.

To remind you of the adaptability of my wood-fibre to the various parts of the human frame, I present you four splint forms with brief remarks upon each: (1) wrist splint, (2) humeral splints, (3) thumb splint, (4) rib splint.

(1) *Splint for Wrist Fixation.* — This splint form is applicable to wrist injuries and in particular for the treatment of Colles's fracture. It is made of wood-fibre splint material, moulded over the dorsum of the forearm and hand in a semi-prone position, the hand in line with the forearm. It permits of an efficient treatment of Colles's fracture, that is, passive motion of the fingers from the first day, and, carefully, of the wrist from the fifth day. The splint is discarded generally on the twenty-first day. The efficiency of this treatment I have demonstrated, and am pleased to find that one text-book, Moullin's (translated by J. B. Hamilton), advocates it, Moullin's conclusions on the efficiency of the treatment being independent of my own. The splint form, however, is original. Such a splint compares favorably with the elaborate fencing and staging which we frequently see surrounding the arms of hospital patients perambulating Boston's streets. If such patients or the hospitals derived an income by letting space for advertising purposes on this constructional arm splinting, its use nowadays would be more comprehensible.

(2) *Humeral Splints.* — These are moulded upon the arm, and follow the directions given by Hamilton for moulding similar splints for fracture of the surgical neck of the humerus from leather. Hamilton taught and practised scientific splinting, and was ever averse to the use of plaster-of-Paris.

(3) *Thumb Splint.* — This is readily made by cutting a piece of my splint material and moulding it so as to enclose the thumb, the back of the hand and a portion of the palm, avoiding the cross-palm lines. It forms an efficient thumb splint. Its description was published in the *Boston Medical and Surgical Journal* April 12, 1894. I venture to bring it to your notice again, as I see by an article in the same journal since, one of our hospitals has been struggling with a tin thumb-splint. The age of tin splints is passed. The

¹ Read before the Surgical Section of the Suffolk District Medical Society, January 6, 1896.

fact that tin is not permeable to x-rays condemns its use for such purposes, as to-day we desire to know the position of bones shown through the splinting, not caring to depend upon a guess as to their condition.

(4) *Rib Splint*.—This splint is a very simple one and readily constructed. It should be moulded over the injured side of the chest from an appropriately shaped splint blank, and bandaged thereon with a swathe. This treatment for the ordinary case of fractured ribs seems a rational one. I do not understand how adhesive plaster or a simple swathe can protect the broken bones from external pressure that may occur at any time, and particularly when the patient sleeps. The rib-splint, however, spanning the weakness in the chest wall and resting on the secure foundation of the sound ribs, prevents undue pressure from reaching the point of fracture.

Medical Progress.

RECENT PROGRESS IN NEUROLOGY.

BY PHILIP COOMBS KNAPP, A.M., M.D.

SCIATICA.

BIRO¹ has studied a series of cases of sciatica with the object of making a more exact differential diagnosis between sciatic neuralgia, sciatic neuritis, and hysterical conditions. He believes that in the condition of the Achilles-tendon reflex may be found a distinctive diagnostic criterion between neuralgia and neuritis; every case in which this reflex is diminished or lost is to be regarded as a neuritis, provided, of course, that diseases of the joints and of the spinal cord itself be excluded. In 12 cases the Achilles-tendon reflex was diminished or lost, and in eight of these muscular atrophy was observed in the muscles supplied by the sciatic nerve, with qualitative changes in the electrical reactions, and, in one case, with actual reaction of degeneration. In neuritis the special painful points are often wanting, occurring in only 42 per cent. of the cases; in neuralgia they are found in 84 per cent. Other sensory disturbances are rare in neuralgia, but are noted in half the cases of neuritis. In some cases hysteria may resemble sciatica. In these cases the painful points are rare, there is no pain on passive movements, nor is there any pain on flexion of the extended leg on the trunk. There is often a striking disproportion between the disturbances of function or the patient's complaints and the objective signs. The symptoms may be inconstant, the pain shifting from one side to the other; hysteria also may affect young women, while sciatic neuralgia or neuritis is more common in men of middle age. Out of 156 cases, about seven per cent. were regarded as hysteria and fourteen per cent. as actual neuritis. He concludes with some remarks upon etiology, showing that hemorrhoids were a possible factor in only seven per cent. of the cases, trauma and parturition very rarely have any influence, and exposure to cold is of slight importance, as many cases occurring in the warm and dry season as in the cold and wet. Recurrences were noted in less than two per cent. of the cases. The diagnosis between hysteria and neuralgia or neuritis is of great importance in treatment, since in the former case the use of the leg is to be encour-

aged, while in neuralgia and neuritis motion must be restrained.

[Biro says nothing of the knee-jerk which is occasionally found diminished in cases of sciatic neuritis. It is a well-known fact that in the early stages of multiple neuritis and in mild cases of multiple neuritis the knee-jerk may be exaggerated or unaffected. It would not be strange, therefore, if in the early stages or in a mild case of sciatic neuritis the Achilles-tendon reflex were not affected. Biro's distinction, therefore, might be simply one showing the degree of neuritis, not a distinction between neuritis and neuralgia. In view of the pathological findings in cases of severe trigeminal neuralgia, it is a question whether there is not a neuritis as the pathological basis in every case of neuralgia. Gowers's claim that sciatica is a sciatic neuritis seems well founded. — REF.]

TORTICOLLIS.

Risien Russell² has published the report of an experimental investigation of the cervical and thoracic nerve roots in relation to the subject of wry-neck. In most cases excision of the spinal accessory nerve alone is of little avail, and the only surgical measure which offers a reasonable prospect of permanent relief is division of the posterior branches of the upper cervical spinal nerve roots. In order to determine just what the anatomical relations are between these nerve roots and the muscles, he conducted a series of experiments on monkeys. For the precise knowledge of the muscles innervated by any given nerve root we must refer to the original article, noting only that there is considerably more individual variation with regard to the nerve-root supply of the neck muscles than of those of the limbs. The practical application of his investigations, however, may be summed up briefly. In the commonest forms of torticollis, surgical treatment must be directed chiefly to the upper four cervical roots; if there be lateral inclination of the head, chiefly to the first and second, if the occiput be drawn backwards, chiefly to the third and fourth. The fifth and sixth roots are least of all likely to conduct impulses which may give rise to spasm, but even muscles supplied by the seventh and eighth roots may give rise to spasmodic movements of the head. When the scaleni are involved, as rarely happens, surgical interference is contra-indicated, for they are innervated in part from the upper dorsal roots, which also contain accelerator and augmentor fibres of the heart, so that section of these roots would have dangerous consequences. He thinks it improbable that, if the chief roots supplying a muscle be divided, and if another root send a few fibres to that muscle, the full force of the nervous discharge should reach the muscle by these few fibres and thus keep up the spasm, but there is a remarkable power of recovery after division of the nerve roots, which may be due to various causes.

Brissaud³ holds that there is a mental torticollis, where surgical interference is useless, citing, as an example, a case where the lightest application of the finger in steadying the head would check the spasm absolutely, simply an act of faith. Such cases are not uncommon. In less than three years he has seen 19 cases, due originally to some transitory cause, where the effect has persisted as an obstinate torticollis in neurasthenic and debilitated subjects. Occasionally

¹ Brain, xx, 55, Spring and Summer, 1897.

² Revue Neurologique, January 30, 1897.

³ Deutsche Zeitschrift für Nervenheilkunde, xl, 207, November, 1897.

some psychical accident may lead to a sudden cure. He criticises unfavorably the results obtained by operation in a series of 12 cases where Kocher divided many of the muscles, and urges the benefit of psychical therapeutics (not hypnotism), where by careful gymnastic exercises and education of the patient a cure can often be effected. In this connection it may be noted that Pauly⁴ has urged that some cases may be of reflex origin, and has reported a case which he thought due to the reflex irritation of a goitre.

The discussion upon this subject at the last meeting of the American Neurological Association has already been reported in these columns,⁵ and need hardly be repeated here. It may be remembered that the advantages of operation were warmly urged by Drs. Walton and Richardson, but that the majority of the other speakers were of the opinion that operation afforded little if any benefit.

SPINAL CONCUSSION.

Kirchgässer⁶ has repeated the well-known experiments of Schmaus on rabbits, by placing an elastic rubber disc covered with wood over the spine, and striking several blows with a mallet until paresis of the hind legs developed. By the second or third blow spasm of the legs developed; twenty blows usually sufficed to produce paresis. He never found any injury of the vertebral column or hemorrhage into the vertebral canal or the cord itself, although in one case there were slight hemorrhages in the spinal muscles and on the anterior surface of the psoas. In later experiments the rubber disc was used alone and fewer and lighter blows were given. In the first four experiments where more violence was used, he found, by Marchi's method, evidences of disease in the lower dorsal cord involving the whole transverse section, destruction of medullary sheaths, disappearance of fibres, and ascending and descending degeneration in the cord. In two cases where the blows were few and light the changes were less pronounced, were limited to the anterior portion of the cord, and were attended only with descending degeneration. In the former cases, Weigert's method showed distinct changes which it did not show in the latter. The changes correspond to those described by Schmaus, except that Schmaus, working before Marchi's method was made known, failed to recognize that the changes in the cord, above and below the seat of injury, were due to degeneration of the various tracts. The experiments also prove that quite marked organic changes may occur in the spinal cord from simple concussion without injury to the vertebræ, hemorrhage in the vertebral canal or in the cord itself, or even any marked injury of the soft parts outside the vertebræ.

In confirmation of these views Erb⁷ has brought forward more proof from the clinical side showing that chronic and progressive lesions of the cord may develop as the result of concussion. In the first case a healthy man of fifty-six fell on the ice striking on his buttocks. Except for a bruise and some soreness he had no symptoms until two weeks later, when he had a contracted feeling in his calves and difficulty in moving the right great toe. Two weeks later he had similar trouble in the left great toe, and he began to have difficulty in raising his toes in walking. Later he had

trouble in raising the legs to mount the stairs. In three months' time the trouble reached its height and then remained stationary. Twenty months after the injury, he had complete paralysis of the leg muscles with marked degenerative atrophy and fibrillary twitching, with marked paresis of the thigh muscles, and some paresis of the glutei and extensors of the thigh. There were no sensory disturbances. The reflex at the ankle was lost and that at the knee lively. In a second case a healthy man had a violent wrench of both arms, causing severe pain in the shoulders. The left arm recovered in a few days, the right arm in three weeks, but later he noticed that he could not use his arms quite so well in working above his head. Two and a half years later he began to have weakness and slight wasting of the right arm, which at first improved a little but later grew worse, and extended into the left arm until finally he had a marked degenerative atrophy with fibrillary twitching in both arms and both shoulders, most marked in the muscles of the shoulder and upper arm. There were no sensory disturbances. There were no spastic symptoms and the reflexes were almost gone. Erb gives a brief synopsis of a number of similar cases reported by various observers, and after a very careful and exhaustive consideration of all the possibilities, considers both cases to be chronic progressive poliomyelitis and that both were undoubtedly the result of the accidents described.

MUSCULAR ATROPHY IN HEMIPLEGIA.

Schaffer⁸ has found distinct muscular atrophy in 22 out of 23 cases of ordinary cerebral hemiplegia, and he considers it a regular accompaniment of this condition. In the majority of cases the degree of atrophy is very considerable and it may be diffuse or localized, and it usually varies in intensity from the proximal part of the upper extremity downwards. In rare cases the non-paralyzed side may also be affected. The electrical irritability of the muscles is diminished, and slow contractions occur, but complete reaction of degeneration was never observed. Fibrillary contractions were occasionally seen. Schaffer then reviews the two theories that have been advanced to account for this atrophy, the older one that it was due to a secondary lesion in the cord, and the later one that it was due to a lesion in the thalamus; certain writers, however, have maintained the opinion that early atrophies were of cerebral origin and late atrophies of spinal origin. In two old cases Schaffer found pronounced degeneration in the pyramidal tracts and atrophy of the anterior horn, and in a case of only forty-eight days' duration where there was moderate atrophy there was secondary degeneration in the pyramidal tract revealed by the Marchi method, and degeneration of the ganglion cells in the anterior horn revealed by Nissl's method. The reason of these changes in the spinal ganglion cells leads to a study of the trophic conditions in the light of our modern ideas of the neuron, and to the following conclusions: the trophic function of the nervous system is manifested in a simple and in a complex form; the elementary trophic influence is that exerted by a nerve cell on its axis cylinder and terminal arborizations, the systemic influence is that exerted by one neuron on another, in functional relation with it. This systemic influence may be homologous (only motor or only sensory) or heterologous (sensori-motor). As soon as the integrity of a neuron is injured both parts

⁴ *Revue de Médecine*, February, 1897.

⁵ See this Journal, October 7, 1897.

⁶ *Deutsche Zeitschrift für Nervenheilkunde*, xl, 406, December, 1897.

⁷ *Loc. cit.*, xl, 122, September, 1897.

⁸ *Monatsschrift für Psychiatrie und Neurologie*, July, 1897.

suffer, contrary to Waller's law that only the part removed from the nerve-cell suffered. In the motor tract there may be an acute or a chronic necrosis of either the central or the peripheral neurons. If from any cause the central neuron is affected, the peripheral neuron, no longer receiving its accustomed stimulus, finally undergoes changes, and, on the other hand, if the peripheral neuron be diseased, a chronic necrosis later develops in the central neuron, which can no longer exert its usual influence upon the peripheral neuron. In like manner, if the sensory neuron be diseased, the motor neuron, no longer receiving its customary sensory stimuli, will undergo changes, as seen in the muscular atrophy of tabes or after amputations.

(To be continued.)

Reports of Societies.

SURGICAL SECTION OF THE SUFFOLK DISTRICT MEDICAL SOCIETY.

PAUL THORNDIKE, M.D., SECRETARY.

REGULAR Meeting, Wednesday, January 5, 1898, DR. H. L. BURRELL in the chair.

APPARATUS FOR APPLYING DRY HEAT.

DR. J. E. GOLDTHWAIT showed an inexpensive yet efficient apparatus for use in applying dry heat to bone and joint diseases.

DR. THOMAS FILLEBROWN read a paper entitled SOME MODIFICATIONS OF THE OPERATION FOR CLEFT-PALATE AND HARE-LIP.¹

DR. C. B. PORTER: I have been very much interested in listening to Dr. Fillebrown's paper on this subject. It is one in which I have been interested for a great many years, and I have been more fortunate perhaps than some in having had the opportunity to see Dr. J. Mason Warren, who had a world-wide reputation for this operation, do the operation and learn from him the technique as he had improved upon it, and from that time until now in cases that required it have done the operation. I have never divided the muscles as Dr. Fillebrown thought possibly I had; I have never resorted to that, and I only have to differ from my experience — perhaps more experience will prove that Dr. Fillebrown is right and that I am wrong — and that is that the time for operating is after the child has teeth enough to hold an obturator. It is possible that the operation as modified by him will do away entirely with the obturator, but to my mind that is one of the most important elements of success in the operation, because it obviates the pressure which the tongue brings to bear upon the parts in the act of swallowing. Unless a person has thought about it he hardly realizes how much pressure the tongue produces upon the palate in swallowing, and the only non-successes I have had have been where the patient was too young to wear an obturator, so that for a number of years I have not operated upon anything under the age at which the first teeth will hold an obturator.

I now operate entirely in the Rose position, that is, with the head over the end of the operating-table, and in that position there is no danger of blood getting into the trachea, which is one of the most trying things in operating in the upright position. Years ago in watching, for instance, Dr. Warren do the operations that

were generally done upon young adults, I noticed that the bleeding was controlled by the application of ice at the time of the operation, and that the operation was done without ether, it being thought advisable then to undertake the operation, as I recollect, not till the person could have the fortitude to have the operation done without ether. I never remember seeing the operation done with an anesthetic. So that the first thing I would lay stress upon would be operating in the Rose position. There is, of course, more bleeding in that position than in the upright, but it is very easy to control. The sea sponges should be used always in this operation, and if pressed in and on to the bleeding points a short time, the bleeding is controlled. I have never been obliged to tie a vessel; in fact, the vessels cannot be seen very well. I have always made the lateral incisions along the alveolar arch in all the cases, that is, not dividing the muscles which Dr. Brown spoke of; and in that way it seems to me the tension is taken off better than in any other manner.

Those who are familiar with the arch of the palate in these cases know how very acute the angle is in the anterior part; instead of being arched, it is a sharp angle, so that the flaps when dissected off and left attached in front make it very difficult to get a needle of sufficiently small curve to enter there. Having made these lateral incisions, I have carried them round to the middle line in front on both sides, so that those flaps fall down, and then they will come together with the greatest ease; and it is astonishing how much is gained by that manœuvre. After sewing the flaps together on the median line, they can again be attached in front. I will show a case later on in which I have done that.

I have always used silk soaked in the compound tincture of benzoin. That was one of Dr. Warren's expedients to keep the stitches from slipping. As they are tied, it prevents slipping, and one does not have to resort to the surgical knot.

I think I have laid sufficient stress on the obturator. I consider it is a very important thing.

If I may be allowed, I would like to show a case I have here that is just recovering from the operation. This patient was so obstinate we could not syringe out the nostrils and she became a little septic.

If we can have an obturator devised like Dr. Fillebrown's, which may be used in quite young children, I should think the time for operating would be as early as an obturator could be safely worn. The question hinges upon the obturator with me very largely.

DR. FILLEBROWN: I will add that the only question as to how early the operation should be done is, How young can the child bear it? I feel fully assured it can be well borne before the child is two years old.

The best position for me is the semi-upright; I suppose it is because I am most accustomed to it. I have tried both, and have had no trouble from blood entering the trachea in either case. If the patient is not too deeply anesthetized, there is no danger of blood passing the epiglottis.

DRS. J. P. CLARK and F. B. HARRINGTON presented a paper on

EARLY DIAGNOSIS OF A CASE OF CANCER OF THE LARYNX; REMOVAL OF THE GROWTH BY THYROTOMY; RECOVERY.²

DR. PRESCOTT: A microscopical section from the specimens received from Dr. Clark showed it to be a

¹ See page 105 of the Journal.

² See page 107 of the Journal.

typical epidermoid cancer, but in the tissues which were removed from around the larynx by Dr. Harrington there was no cancerous infiltration; there were no epithelial prolongations, nothing but inflammatory tissue, fibrous tissue and part of the muscles of the larynx. It was a typical case of epidermoid cancer of the larynx removed before there had been any infiltration.

Dr. G. A. Leland asked me if he could not get here, to show this specimen which was removed post-mortem, as you see, from a case of his which he had followed four years. When he first saw the patient the condition must have been very similar to that which was noticed in Dr. Clark's and Dr. Harrington's case. Operation was considered, but not recommended, owing to the age of the patient, seventy-four years. A great deal of the tumor was removed intra-laryngeally, and the patient lived four years, not suffering very much until the latter part of his life, when tracheotomy became necessary (four weeks before his death). He did very well considering his condition even after the tracheotomy, but died of an acute lobar pneumonia with a general pneumococcus infection. Here, even at the end of four years, there is almost no infiltration around the larynx, although there is one large gland down near the carotids. It has not been examined microscopically yet, because the specimen was put right into Kaiserling in order to keep the color.

DR. C. L. SCUDDER read a paper on

THE AMBULATORY TREATMENT OF FRACTURES.³

DR. E. A. TRACY considered the subject of
SCIENTIFIC SPLINTING.⁴

Recent Literature.

A Text-Book of Special Pathological Anatomy. By ERNST ZIEGLER, Professor of Pathology in the University of Freiburg. Translated and edited, from the eighth German edition, by DONALD MACALISTER, M.A., M.D., Linacre Lecturer of Physic and Tutor of St. John's College, Cambridge, and HENRY W. CATTELL, M.A., M.D., Demonstrator of Morbid Anatomy in the University of Pennsylvania. Sections IX-XV. New York: The Macmillan Company. 1897.

The appearance of this second volume, comprising Sections IX-XV of the English translation of the latest German edition of this well-known work, cannot fail to be welcome to students and teachers of pathology.

There is certainly no text-book which equals that of Ziegler for the purposes of the student of elementary pathological histology. Although not a treatise altogether satisfactory to the specialist, it admirably fulfills the need of students for a clear and simple account, supplemented with numerous drawings, of the accepted facts in this department of pathological study.

The present volume contains reproductions of all of the illustrations of the original, together with the numerous special reference lists which form such a useful feature of the German work. The translators' part has been done very creditably and the typography and binding are good. The illustrations in most instances are well reproduced. We can heartily recommend the book.

³ See page 102 of the Journal.

⁴ See page 110 of the Journal.

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THE INFLUENCE OF PATHOLOGY UPON THERAPEUTICS.

"THE Art of Medicine," says Pye Smith in a recent lecture upon the subject of the influence of pathology upon therapeutics,¹ "deals with the most diverse objects": mechanical causes, like a fracture or a hernia; the results upon the system of an insufficient supply of food; the presence of a foreign body in the tissues; the complications of a physiological process, such as parturition; the natural decay of a living organism, or the results of its invasion by a swarm of parasites. But like other arts, such as navigation, architecture or engineering, it depends upon science, in such important departments as the prevention of epidemics of infectious diseases, the treatment of poisoning by the proper antidotes, correction of deformities of limbs, and other matters too many to enumerate.

"We may speak of physiology, pathology and pharmacology as the medical sciences; so we may speak of the science of war; but preventive and curative medicine, like strategy and tactics, still remains an art, and medical science means only physiology in its widest term, including the physiology of disease and the effect of drugs and poisons."

Pathology, as studied to-day, is not mere morbid anatomy, but an inquiry into the natural history of disease, into the causes of disturbed bodily processes (whether heat or cold), the effect of mechanical agents or of the invasion of the body by parasites.

It is only within our own memory that the indispensable method of experiment has been added to that of observation. The new pathology differs from the old in that it does not consider the hepatized lung, the calculus of the kidney or the tumor of the brain as the disease, but regards disease as a process of which the origin as well as the results demand investigation. "Diseases are processes just as natural and necessary as health, and they exhibit disturbance, not abolition, of the processes of physiology. Involution,

¹ Lancet, January 20, 1898.

degeneration, decay and death are as much normal events as evolution, growth and birth. And this is an encouraging view to take, for if disease is only perversion the perverted function may be restored; if we know what sets things wrong we may hope to set them right again. When we discover a parasite we may hope to poison it; when we isolate a toxin we may hope to find an antitoxin."

The statement that if the labor and skill employed on pathology had been devoted to therapeutics the art of medicine would be more advanced, will not bear analysis. Now and then a great discovery, like that of vaccination, has been made by observation and experience alone; but not until many years have been spent in study and experiment do we learn that vaccination is only a general example of the method of combating disease by means of attenuated virus. Such results as the prevention of cholera and enteric fever by the discovery that their virus is conveyed by drinking-water, and the prevention of post-operative and puerperal sepsis by the avoidance of infection by pathogenic bacteria, are among the direct results of the application of pathology to practice.

The application of pathology to practice does not exclude the salutary check of experience, any more than does the application of the higher mathematics to the art of bridge-building. Pathology can merely indicate a probable line of treatment; clinical experience must show whether it is trustworthy. Sometimes we find that the results of clinical trials differ for the worse from those of laboratory experiment, but we can all call to mind a sufficiency of examples of the brilliant clinical success of the results of pathological experiment.

The kind of practice which is not based upon pathology is found to be not only irrational but futile in results. The "depletory" and "corroborant" systems of medicine, those which depend upon "sympathies," the systems of "allopathy" and homeopathy are not wrong answers to a serious question, but attempts to solve a meaningless problem. "Disease in the abstract" does not exist. Diseases are as natural as health, and the reaction of the living organism to injurious stimulants is evidence of life, not of death.

"If we fix our attention on symptoms and direct our treatment to them alone, we may please the majority of our patients (who can always supply us with the seat and the cause of their disease and expect from us only the appropriate remedy), but we shall never satisfy our own conscience. For we know or ought to know that symptoms are only indications of the 'seat and the causes of diseases,' and that while these are undiscovered those can only be dealt with in the dark—uselessly or injuriously. . . .

"Surely we must condemn not only the exploded systems of sympathies and signatures, the Brunonian and the homeopathic, but all systems as systems and all attempts to base treatment on occult properties. The one touchstone for efficient treatment is experience, spread over many lands, prolonged for many years,

attested by many competent witnesses. And the one safeguard that our practice shall be rational and honest is that it follows the teaching of pathology."

NEW YORK STATE BOARD OF CHARITIES ON DISPENSARIES.

THE Thirty-first Annual Report of the New York State Board of Charities, which was submitted to the Legislature on January 24th, is said to have been received with much satisfaction by the medical profession.

While the Board cannot sympathize, says the report, with any harsh assault upon the dispensaries, which, properly conducted, are accomplishing much good, it is undoubtedly true that there has been much to irritate in the position assumed by the managers of some of these institutions, and that unwholesome and harmful conditions exist for which there should be found some adequate but temperate remedy. Most of the dispensaries of New York, it is argued, do material injustice to those who do not seek charity and continually dispense relief to those who do not need it. Competition among dispensary managers has resulted in the situation that nearly one-half of the inhabitants of the city are now receiving practically free medical treatment. That this is a wrongful state of affairs and produces an unfair competition with physicians, who, unlike the dispensaries, are not partially supported by charitable donations, admits of no question. That it is also extremely pauperizing in its tendencies is equally true.

In the city of New York and vicinity there has been a greater growth of some forms of charity than necessity demands. For this reason the Board was unable to approve the incorporation of St. Bartholomew's Clinic and the Cherry Tree Home for Destitute and Orphan Children. On reliable information it can be stated that there are now more than four thousand vacant beds in the children's institutions of New York City. There are strong reasons why the Board should carefully examine into the merits of every application for the approval of a certificate and why it should refuse approval unless the necessity for the incorporation at the time and place and under the circumstances set forth in the application be affirmatively shown and satisfactory evidence be furnished as to the character and standing in the community of the proposed incorporators, and also as to the financial standing and sources of future revenue of the institution they wish to incorporate.

If one-half the thought and energy, the report goes on to say, which are wasted in making the poor of our great cities dependent were used to encourage habits of industry and a spirit of independence, the condition of the destitute would be materially improved and that of the State rendered more prosperous and satisfactory. The Board earnestly recommends the passage of a statute empowering it to make rules and regulations in accordance with which the work of

placing out dependent children in family homes shall be carried on. Among the other recommendations made are that the Board be authorized to select all new sites for State institutions subject to its supervision, that the adoption of building plans for State or other charitable institutions be made subject to its supervision, and that no more charters be granted to private reformatory organizations, but that as soon as practicable all such institutions shall be owned and managed by the State.

MEDICAL NOTES.

A MEDICAL SENATOR IN FRANCE.—We learn from the *Presse Médicale* that Dr. Samuel Pozzi has been elected a senator.

THE INTERNATIONAL CONGRESS OF HYGIENE AND DEMOGRAPHY.—The Ninth International Congress of Hygiene and Demography will be held at Madrid, April 10–17, 1898, under the patronage of His Majesty King Alfonso XIII and Her Majesty the Queen Regent. The President of the Congress is Dr. Julian Calleja and the Secretary-General is Dr. Amalio Gimeno, Minister of the Interior, to whom all correspondence should be addressed.

A CHINESE EDITION OF "GRAY'S ANATOMY."—Dr. H. T. Whitney, president of the Medical Missionary Association of China, is engaged in the laborious task of translating "Gray's Anatomy" into Chinese. The undertaking has impressed Dr. Whitney's former associates in the Northern Ohio District Medical Society as one of such magnitude that they have come to his assistance by passing a special resolution congratulating him and wishing him God-speed in his work.

THE KENTUCKY DEFINITION OF THE PRACTICE OF MEDICINE.—Judge Thompson, of Kentucky, in pronouncing sentence upon an osteopath who was convicted of subjecting a child with tuberculous disease of the hip-joint to cruel and unnecessary torture, gave the following definition of the practice of medicine: "Any person who, for compensation, professes to apply any science which relates to the prevention, cure or alleviation of the diseases of the human body, is practicing medicine within the meaning of the statute." This concise yet comprehensive definition, which will doubtless serve as a precedent, is broad enough to include every form of pretender from the itinerant advertising quack to the so-called Christian Science and Faith Cure healers. New York may well do homage to Kentucky, whose noble profession has driven from its borders every irregular practitioner of whatsoever kind, system or genus. —*Buffalo Medical and Surgical Journal*.

ZOLA AND THE PARIS MEDICAL STUDENTS.—The Paris medical students have been greatly angered by M. Zola's letter to the President of the Republic, published in *L'Aurore*, wherein he accuses General

Billot of suppressing proof of Captain Dreyfus's innocence, and other generals of being accomplices. The Medical Students' General Association addressed a letter to M. Zola, protesting against his views. Medical students have amused themselves by attempting to parade about Paris in organized bands, shouting, "Conspuez Zola!" A few policemen quickly sent them home to their lodgings. M. Zola, in reply to their letter, requests M. Tissier, the President of the Committee of the General Students' Association, to assure his comrades that he (Zola) does not attack the army, but only the conduct of some of its chief officers; that his heart aches to see the youth of France mixed up with those interested people who manœuvre to make these two questions appear one. M. Duclaux (member of the French Institute, and director of the Pasteur Institute), Prof. Charles Friedel, Professor Grimaux, Dr. Pottévin, Dr. A. Zuber, M. Delbet (hospital surgeon, and *professeur agrégé* at the Medical Faculty), Professor Bonnier, and many other men well known in the academic and scientific worlds, have signed a petition asking that the Dreyfus case may be reopened.

TYPHOID FEVER IN PHILADELPHIA.—The *Medical News* gives the following figures with regard to the present epidemic of typhoid fever in Philadelphia: "Since the beginning of the present outbreak, the first week of last December, 1,134 new cases of enteric fever have been reported in the city of Philadelphia, and of this number 675 have occurred during the first four weeks of the new year, or an average of more than 168 new cases weekly up to the present time. As a striking comparison, we may state that during two weeks of the present month New York City—exclusive of Brooklyn, etc.—with a population twice that of Philadelphia, reported a total of 36 new cases of typhoid, while Philadelphia for the corresponding period reported no less than 366 new cases!" The Schuylkill River, from which the greater part of the city's water-supply is derived, is known to be infected, and a loan of \$3,700,000 was authorized last fall for the filtration, or purification by other means, of the water-supply. The reason that a filtration-plant has not been established is said to be the failure of the Common and Select Councils of this ring-ridden city to take action, for the reason that they were unable to effect among themselves a sufficiently remunerative plan for the division of the spoils attending the undertaking. We can agree with the spirit if not the letter of the editor's statement, that the councils richly deserve for their utter incompetency in all legislation save that pertaining to their individual enrichment, the "desecration" which is heaped upon them by the entire community.

The editor of the *Philadelphia Medical Journal* expresses himself in no uncertain tones upon this subject. We quote the following from among his comments: "Filter the water! London has a death-rate a fraction of that from which we suffer. Why? Because she has common-sense enough to filter the

water, originally filthier than ours, which she uses. While our bosses and politicians are 'feathering their own nests,' annexing Hawaii, and kicking up a fuss with foreign countries, they have not time to attend to the health of the people whom they misrepresent, — and the murdered people meekly die, and the friends of the dead continue to vote for the bosses and their henchmen. . . . Bordering on the incredible is it that a member of Councils could be found to stand up at the very hour when scores of his fellow-citizens were lying on their death-beds in consequence of having been poisoned by drinking this lethal fluid, and utter the words, 'We have good water.' "

BOSTON AND NEW ENGLAND.

A CENTENARIAN. — Mrs. Sarah Weed, of Merri-mac, Mass., celebrated her hundredth birthday on January 28th. She was born in Amesbury, Mass., and was married in 1819.

FINED FOR NON-REGISTRATION. — A. R. Gilmore pleaded guilty to the charge of holding himself out to the public as a physician, without being registered, and was fined one hundred dollars in the Superior Criminal Court in Boston last week.

THE VERMONT STATE BOARD OF HEALTH has recently established a bacteriological laboratory in which bacteriological diagnoses will be made free of charge for physicians of that State. The laboratory will be opened for this branch of its work on February 1st.

MEETING OF MEDICAL MILITIAMEN. — A meeting of the medical officers of the Massachusetts Militia was held at the South Armory in Boston on January 27th. Surgeon-General Blood presided, and numerous papers on various subjects of interest to military surgeons were read.

"THE AMERICAN JOURNAL OF PHYSIOLOGY." — The first issue of the *American Journal of Physiology* appears under date of January 3d, and under the imprint of Ginn & Co., of Boston. It is printed at the University Press and has an attractive appearance. There are nine articles, all by well-known men on subjects closely related to physiology and physiological chemistry. All who are interested in this department of medical science will find this journal invaluable.

SUBJECTS FOR ANATOMICAL STUDY. — The Judiciary Committee of the Massachusetts House of Representatives gave a hearing last week on the petition of Howard P. Bellows, that the law which now permits medical schools to take bodies from the public institutions for the pursuit of anatomical science may be made mandatory upon the overseers of the poor, trustees for children of Boston, the Boston pauper institutions' trustees, and officers of State institutions. The bill was advocated by Dr. H. P. Walcott, Chairman of the State Board of Health, Dr. Bellows, and by Dr. Thomas Dwight, Professor of Anatomy at Harvard.

TO IMPROVE THE MILK-SUPPLY. — At a Meeting of the Massachusetts Association of Boards of Health in Boston on January 28th the rules regulating the purity of milk-supplies, proposed by the committee on the subject, of which Prof. W. T. Sedgwick is the chairman, were adopted, having been almost unanimously agreed to by the association and the milk producers who were present. Officers were elected as follows: Dr. Henry P. Walcott, President; Dr. S. H. Durgin and Dr. S. W. Abbott, Vice-Presidents; Dr. Edwin Farnham, Secretary; Dr. J. B. Field, Treasurer; Dr. W. H. Chapin, Dr. H. L. Chase, J. C. Coffee, R. L. Newcomb, Dr. J. A. Gage, Dr. W. P. Bowers, Dr. G. L. Tobey, Dr. W. Y. Fox, Nathaniel Hathaway and David M. Little, Executive Committee.

SPITTING IN THE STREET-CARS. — The observance of the prohibition of the Boston Board of Health and the boards of some of the neighboring towns against spitting in the street-cars seems of late to have been somewhat lax. Before resort is had to more stringent measures for the enforcement of the rule, the authorities of the Boston Street Railway Company propose trying the effect of furnishing the conductors with pads of slips on which are printed the regulations of the Board of Health. To every offender and on the occasion of each offence against the rule the conductors are enjoined to politely furnish one of these slips. We would suggest that the conductors be also provided with a basket of destructible spit cups, and a bottle of antiseptic solution, to be furnished together with the slip.

BROOKLINE ADOPTS AN ANTI-SPITTING ORDINANCE. — The Board of Health of Brookline, Mass., has issued an order which forbids spitting upon the floor of any public conveyance, shop, store, hall, church, schoolhouse, railroad station or other public building or upon the steps of any of said conveyances or buildings, or upon the sidewalk of any public way. Spitting into the gutter or street is not forbidden. Copies of the ordinance have been posted in public places, carried by each patrolman and distributed to every family in the town. In the enforcement of the above order, and especially in regard to sidewalks, the members of the police force have been directed to employ both vigilance and tact. On seeing a violation the officer is expected to quietly call the attention of the offender to the order, showing a copy of it, and withdraw. If the officer sees a repetition of the offence, after he has called attention as above, he will make an arrest.

NEW YORK.

NEW YORK COUNTY MEDICAL ASSOCIATION. — At the annual meeting of the New York County Medical Association, January 17th, the following officers were elected for the ensuing year: President, Dr. George Tucker Harrison; Vice-President, Dr. F. C. Wiggin; Corresponding and Statistical Secretary, Dr. Parker Syms; Treasurer, Dr. John H. Hinton; Member of Executive Committee, Dr. C. E. Dennison.

THE NEW YORK COUNTY MEDICAL SOCIETY VS. THE HEALTH DEPARTMENT.—A bill introduced into the Legislature by Senator Brush and emanating from the Committee on Legislation of the Medical Society of the County of New York is just now exciting much attention. Its apparent purpose is to put an end to the production of antitoxin and vaccine virus by the city, to give a monopoly to private producers, and to stop further progress of the bacteriological work now being done under the direction of the Health Department. The bill attempts to make the declaration that tuberculosis is not a contagious or infectious disease a part of the statute law of the State, and it also provides that the President of the Police Board shall no longer be a member of the Board of Health, and, while it limits the jurisdiction of the Board to questions of health only, makes possible the appointment of a Board composed wholly of physicians, and the selection of a physician instead of a layman as president. The following diseases alone are to be characterized as contagious, pestilential or infectious: measles, diphtheria, scarlet fever, small-pox, chicken-pox, whooping cough, typhoid fever, typhus fever, cerebro-spinal meningitis, Asiatic cholera and yellow fever. It is said that when the Health Department began the work which it is now proposed to abolish, diphtheria antitoxin was selling for \$12, and that in consequence of the department's production the price is now \$1.50. The city's bacteriological bureau has attracted attention in Berlin, Vienna, England and Scotland, where its methods have been copied, and in many American cities. An appropriation of \$30,000 a year is made for it, and as much more is realized by the sale of antitoxin and vaccine virus, with which it supplies the city of Chicago.

On January 25th the Board of Health issued a statement in reply to the criticisms of the County Society. President Strauss declares that the proposed bill will be energetically fought. He calls attention to the reduction in the death-rate for the week ending January 22d as compared with the corresponding week of 1897, the figures being 17.95 and 18.65 respectively, and to the reduction of infant mortality under the present board, the saving of lives of children under two years of age since 1893 amounting to 86.5 per cent.

On January 26th the Committee of the County Society had a hearing before the Board of Health in regard to the bill, and in the course of it Dr. T. E. Satterthwaite, the chairman, stated that the extermination of tuberculosis was a Utopian dream which could never be realized. "It is a singular fact," he said, "that the plan advocated by the charter is in line with a similar one tried in Naples in 1782. Physicians were then obliged to report their cases of consumption. Failure to comply was punishable with a heavy fine. Yet at the end of fifty-six years, during which this law was applied, nothing was accomplished." He argued that it would be impracticable to isolate the consumptive poor. The tuberculous bacilli could not be exterminated, because they were too widely disseminated,

and the city could not give hospital accommodation to tuberculous patients because of their number and because of the great expense.

The Health Commissioners agreed to a postponement of the discussion for one week, when it was to be renewed at Albany.

MORTALITY STATISTICS FOR 1897.—The State Board of Health reports that during the year 1897 there were 117,075 deaths in the State, about 3,000 less than in 1896, and the smallest number in any year since 1889. The mortality from zymotic diseases constituted 14 per cent. of the deaths. In 1896 it was 15.06 per cent., and for the last few years has averaged about 18 per cent. As compared with 1896 there were fewer deaths from diarrheal diseases (by 1,500), diphtheria (by 500) and measles (by 600). Whooping cough and typhoid fever also showed a decrease, while there was a moderate increase in the deaths from scarlet fever. Influenza caused 3,000 deaths early in the year. Consumption caused 12,638, against 13,265 in 1896, and the infant mortality was 32.6 per cent. lower than usual.

Episcellanp.

THE MURDER OF WILLIAM TERRISS.

It has now become an established doctrine that a crime, however deliberate it may have been and however full of knowledge and cunning, if it depend on an insane delusion, cannot be judged as if it were the act of a responsible person. Such cases as that of the man convicted at the Central Criminal Court last week of the murder of Mr. William Terriss doubtless cause many to think that the partially insane, who know what they are doing, should suffer; and this is the foundation of much of the criticism which so often arises when a criminal is recognized to be insane. The summing up of Mr. Justice Channell was on the well-known lines laid down in the Macnaghten case: that a person is responsible for any act if he knows the nature and quality of the act and if he knows that act to be a wrong act. He pointed out that distinct evidence of a diseased state of the mind must be produced, and that this disease so interfered with the mental action of the accused as to prevent him from recognizing that his act was criminal. He said that there was a unanimous opinion of the doctors that the prisoner was of unsound mind at the time he committed the act, but the jury must decide if the insanity was the cause of the crime. The jury after half an hour's deliberation, returned a verdict of guilty. They added that in their opinion the prisoner knew what he was doing, and to whom he was doing it, but that from the medical evidence he was not responsible for his actions. Their verdict made it evident that their feeling was rather in favor of punishing Prince as a criminal.

As was to be expected, the case has given rise to much criticism, and the lay press and the public generally are not satisfied. Still we think the verdict of irresponsibility was right. It requires a good deal of moral courage sometimes to give an opinion which is known to be in opposition to general feeling; but there

can be no doubt that a medical man's duty when called in to give an expert opinion in such a case is to speak without any regard to the feelings of the public. That a man driven to an act by an insane delusion is to be considered responsible for that act is altogether unreasonable. Much has been made of the fact that since this crime was committed several other persons have threatened similar acts; but this would have been just as likely to have occurred if Prince had been condemned to be hanged; crimes lead to crimes, and this is well recognized. The medical evidence was clear, and no one can doubt that it was absolutely correct and impartial. — *British Medical Journal*.

THE NEW AUTOMATIC REVOLVER.

PROFESSOR VON BRUNS, of Tübingen, a well-known authority on questions of military surgery, has published some interesting experiments with the new automatic revolver, which it appears is being adopted by nearly all the European governments. The experiments were made on pine wood, on plates of iron, on a living horse, and on portions of human corpses, at distances varying from 10 to 300 metres. The results were as follows: There was little difference between the effects on living and on dead material. The hole made is from five to seven millimetres in size, and decreases with the increase of distance; the aperture of exit is usually slightly larger than that of entrance. The effect of the projectile on the long hollow bones was exactly similar to that of the German infantry rifle at 1,000 to 2,000 metres. The bone was splintered in every case; in no case did the projectile remain in the bone. The track of the bullet invariably formed a smooth channel without shattering of the bone, and without bony *débris*. In the case of bullets striking the skull there was explosive action, that is, comminution of the vault, at a distance of 10 metres — corresponding to the effect of the infantry rifle at 1,000 metres — which decreased gradually up to 50 metres' distance. As regards the penetrative power, at 10 to 20 metres the projectile passed through two trunks, and only stuck in the third; it pierced pieces of pinewood 32 centimetres thick, and three iron plates each two millimetres thick. In all respects the new automatic pistol proved itself superior to the ordinary army revolver. — *British Medical Journal*.

ABDOMINAL INCISIONS.

GEORGE WOOLSEY, M.D., sums up an excellent article in the January number of the *Annals of Surgery*, entitled, "Some Considerations on Abdominal Incisions," with the following conclusions:

(1) Abdominal incisions, except those in or close to the median line, should be obliquely transverse in order to parallel the nerves (and thereby also the cleavage lines of the skin) so as to avoid partial paralysis of the muscles, weakness of the abdominal wall, and a tendency to hernia.

(2) Intermuscular or even transmuscular incisions should be preferred to those in the linea alba or semilunaris, for in both the latter cases the cicatrix is less strong and more prone to hernia, and in the semilunar line the nerves are necessarily divided.

(3) In place of the median vertical incision the inter-

muscular incision near the inner margin of the rectus, or the trap-door incision around this inner margin, offers many important advantages.

Correspondence.

THE COCAINE HABIT FROM SNUFF.

BOSTON, January 27, 1898.

MR. EDITOR: Will you kindly allow me the use of your columns to briefly report the salient features of one case where a promising young life has been greatly injured, if not totally wrecked, and a family circle brought to grief by the unrestricted sale of nostrums containing cocaine.

About two years ago, while away at boarding-school, a young man from one of the families who look to me for medical advice, together with a chum of his, sought relief from a fancied or real catarrh in the use of "Birney's Catarrh Snuff," containing two and one-half per cent. of cocaine. The result was that, when the case was first brought to my knowledge and the full discovery of the state of affairs was made known, about three months ago, the young man was using from three to six bottles of this snuff daily, and was a confirmed victim of the cocaine habit. He had run up bills for this snuff to the total of about \$600 at various drug-stores where apparently the greed of gain, in some cases at least, and in others ignorance that the apparently harmless nostrum contained a powerful poison, prevented the dealers from taking steps to stop the young man's ruinous career. The accounts, without any notice being given to the young man's family, were allowed to run along for several months, and in one case amounted to over \$100, while another footed up between \$80 and \$90.

The young man is now away from home, at an expense of \$50 per week, under treatment which must be continued for a period of five months before he can be trusted alone, and even then there is grave doubt in regard to the permanency of the cure.

I do not know what is the condition of his chum, although it is said to be worse than the one just related. Nor do I know whether others than these two contracted the habit. I am told that there is no law to prevent the unrestricted sale of this most insidious poison, cocaine. It seems proper that new legislation should be obtained for the protection of the public. The matter will be brought before the Massachusetts Medical Society at the next meeting of the Councillors.

Reports of other cases bearing upon this matter would be important.

Very truly yours,

DAN'L D. GILBERT, M.D.

METEOROLOGICAL RECORD

For the week ending January 22d, in Boston, according to observations furnished by Sergeant J. W. Smith, of the United States Signal Corps:—

Date.	Barometer	Thermometer.			Relative humidity.			Direction of wind.		Velocity of wind.		Wet'h'r. .		Rainfall in inches.
	Daily mean.	Daily mean.	Maximum.	Minimum.	8.00 A. M.	8.00 P. M.	Daily mean.	8.00 A. M.	8.00 P. M.	8.00 A. M.	8.00 P. M.	8.00 A. M.	8.00 P. M.	
S...16	29.89	30	36	23	82	62	72	N.W.	N.W.	8	10	O.	C.	.02
M...17	30.38	18	23	14	82	57	70	N.W.	N.	11	6	C.	C.	
T...18	30.52	28	35	16	78	80	79	W.	W.	6	10	F.	C.	
W...19	30.52	31	39	23	74	72	73	N.W.	S.W.	6	6	F.	C.	
T...20	29.89	37	42	32	100	97	98	E.	W.	7	6	R.	O.	.86
F...21	30.00	40	45	34	77	87	82	W.	N.	13	4	F.	O.	
S...22	30.32	34	37	32	84	86	85	N.E.	S.E.	5	8	O.	O.	
P														

* O., cloudy; C., clear; F., fair; G., fog; H., hazy; S., smoky; R., rain; T., threatening; N., snow. † Indicates trace of rainfall. ☞ Mean for week.

RECORD OF MORTALITY

FOR THE WEEK ENDING SATURDAY, JANUARY 22, 1898.

Cities.	Estimated population.	Reported deaths in each.	Deaths under five years.	Percentage of deaths from				
				Infectious diseases.	Acute lung diseases.	Typhoid fever.	Diphtheria and croup.	Scarlet fever.
New York	3,438,899	705	233	11.06	19.18	.14	2.52	3.22
Chicago	1,619,266	—	—	—	—	—	—	—
Philadelphia	1,214,256	461	147	13.42	19.14	5.06	5.28	.44
Brooklyn	1,160,000	—	—	—	—	—	—	—
St. Louis	570,000	185	34	9.72	16.74	—	5.94	1.08
Baltimore	550,000	173	57	8.70	12.76	—	2.32	5.80
Boston	517,732	195	52	3.57	21.42	—	1.53	.51
Cincinnati	405,000	122	—	5.74	22.96	.82	.82	2.16
Cleveland	350,000	82	28	6.15	11.07	—	3.69	1.23
Pittsburg	285,000	88	32	27.36	15.96	7.98	2.28	—
Washington	271,000	93	29	6.48	20.52	2.16	2.16	—
Milwaukee	278,000	—	—	—	—	—	—	—
Nashville	87,754	24	4	4.16	20.80	—	4.16	—
Worcester	105,050	32	10	6.26	28.17	3.13	—	—
Fall River	95,919	37	12	5.40	11.50	—	—	—
Lowell	87,193	34	10	11.76	20.58	2.94	8.82	—
Cambridge	86,312	28	9	7.14	—	3.57	—	—
Lynn	66,220	18	—	5.55	16.16	—	—	—
Charleston	65,165	—	—	—	—	—	—	—
New Bedford	62,416	22	6	8.30	12.45	—	—	—
Lawrence	55,510	13	8	22.07	15.38	—	7.69	—
Springfield	54,790	29	6	6.90	10.25	—	3.45	—
Holyoke	42,364	17	8	5.88	35.28	—	—	—
Portland	40,000	—	—	—	—	—	—	—
Salem	36,082	15	4	—	—	—	—	—
Brockton	35,853	—	—	—	—	—	—	—
Boston	35,894	7	0	—	—	—	—	—
Malden	35,716	7	1	14.28	14.28	—	—	—
Chelsea	32,716	12	2	8.33	—	8.33	—	—
Haverhill	31,406	—	—	—	—	—	—	—
Gloucester	29,775	—	—	—	—	—	—	—
Newton	28,890	8	3	—	16.66	—	—	—
Fitchburg	28,392	10	3	—	20.00	—	—	—
Taunton	27,812	12	2	8.33	16.66	8.33	—	—
Quincy	22,562	—	—	—	—	—	—	—
Pittsfield	21,891	—	—	—	—	—	—	—
Waltham	21,812	6	0	—	—	—	—	—
Everett	21,575	6	2	16.66	16.66	—	16.66	—
Northampton	17,448	—	—	—	—	—	—	—
Newburyport	14,794	5	1	—	—	—	—	—
Amesbury	10,920	—	—	—	—	—	—	—

Deaths reported 2,518; under five years of age 728; principal infectious diseases (small-pox, measles, diphtheria and croup, cerebro-spinal meningitis, diarrheal diseases, whooping-cough, erysipelas and fevers) 250, acute lung diseases 447, consumption 300, diphtheria and croup 83, typhoid fever 43, scarlet fever 33, diarrheal diseases 33, measles 30, whooping-cough 14, cerebro-spinal meningitis 12, malarial fever 2.

From diarrheal diseases New York 10, Pittsburg 8, Philadelphia 4, Washington and Fall River 2 each, St. Louis, New Bedford, Springfield, Chelsea and Taunton 1 each. From measles New York 16, Philadelphia 7, Pittsburg 4, St. Louis 3. From whooping-cough New York and Pittsburg 3 each, Cincinnati 2, Baltimore, Cleveland, Cambridge, Lynn, New Bedford and Chicopee 1 each. From cerebro-spinal meningitis New York 7, Boston 3, Holyoke 1. From malarial fever Philadelphia and St. Louis 1 each.

In the thirty-three greater towns of England and Wales, with an estimated population of 11,218,378, for the week ending January 15th, the death-rate was 20.6. Deaths reported 4,432; acute diseases of the respiratory organs (London) 516, measles 225, whooping-cough 120, diphtheria 72, fever 42, diarrhea 34, scarlet fever 32.

The death-rates ranged from 12.2 in Huddersfield to 29.6 in Wolverhampton; Birmingham 22.2, Bradford 14.3, Croydon 13.8, Gateshead 17.1, Hull 17.9, Leeds 19.8, Liverpool 25.3, London 22.9, Manchester 20.6, Newcastle-on-Tyne 19.4, Nottingham 14.8, Portsmouth 14.8, Sheffield 18.9, Swansea 13.3, West Ham 17.8.

OFFICIAL LIST OF CHANGES IN THE STATIONS AND DUTIES OF OFFICERS SERVING IN THE MEDICAL DEPARTMENT, U. S. ARMY, FROM JANUARY 22, 1898, TO JANUARY 28, 1898.

FIRST-LIEUT. IRVING W. RAND, assistant surgeon, is relieved from duty at Fort Huachuca, Ariz., and ordered to Fort Duchesne, Utah, for duty.

FIRST-LIEUT. CHARLES E. B. FLAGG, assistant surgeon, is relieved from duty at Fort Duchesne, Utah, and ordered to Columbus Barracks, O., for duty.

CAPTAIN HENRY A. SHAW, assistant surgeon, will report in person at Fort Crook, Neb., for temporary duty at that post,

and upon the arrival there of FIRST-LIEUT. DEANE C. HOWARD will return to his proper station at Fort Snelling, Minn.

CAPTAIN H. C. FISHER, assistant surgeon, is granted three months and two days' leave, to take effect on or about February 1, 1898.

OFFICIAL LIST OF CHANGES OF STATIONS AND DUTIES OF COMMISSIONED OFFICERS OF THE UNITED STATES MARINE-HOSPITAL SERVICE FOR THE SEVEN DAYS ENDING JANUARY 27, 1898.

IRWIN, FAIRFAX, surgeon. To proceed to Marcus Hook, Pa., and inspect State Quarantine Station. January 22, 1898.

SMITH, A. C., passed assistant surgeon. To proceed to Marcus Hook, Pa., and inspect State Quarantine Station. January 22, 1898.

BOARD CONVENED.

Board convened to meet at San Francisco, Cal., for the physical examination of officers of the Revenue Cutter Service. Surgeon J. M. GASSAWAY, Chairman; Passed Assistant Surgeon M. J. ROSENAU, and Assistant Surgeon W. M. JORDAN, Recorders.

SOCIETY NOTICE.

BOSTON SOCIETY FOR MEDICAL IMPROVEMENT.—A regular meeting of the Society will be held at the Medical Library, 19 Boylston Place, on Monday evening, February 7th, at 8 o'clock.

Dr. H. Newton Heineman, of New York, by invitation, will read a paper on, "The Treatment of Circulatory Disturbances at Bad Naheim." The discussion of the paper will be opened by Dr. A. L. Mason.

JAMES G. MUMFORD, M.D., Secretary, 197 Beacon St.

RECENT DEATH.

M. JULES EMILE PEAN, the eminent French surgeon, is dead. He was born at Château Dun (Eure-et-Loire), November 29, 1830, and practised surgery continuously in Paris for more than forty-five years. He was surgeon to the Saint Louis Hospital until 1892. In 1887 he was elected a member of the Academy of Medicine. Three years later he received the decoration of the Legion of Honor and in 1893 was made a commander. He was especially noted for his work in the field of pelvic surgery, and for his adoption and advocacy of the vaginal method of hysterectomy for fibroids and pyosalpinx.

BOOKS AND PAMPHLETS RECEIVED.

Case of Carcinoma of Descending Colon; Excision and Anastomosis; Recovery. By John H. Musser, M.D., and Thomas S. K. Morton, M.D., Philadelphia. Reprint. 1896.

Angina Pectoris: Its Relation to Dilatation of the Heart. On the Disappearance of Endocardial Murmurs of Organic Origin. By J. H. Musser, M.D., Philadelphia. Reprints. 1897.

The Clinical Value and Chemical Results of Using Professor Gartner's Mother Milk in Children. By Louis Fischer, M.D., and Herman Poole, F.C.S., New York. Reprint. 1897.

A Modern Pathological and Therapeutical Study of Rheumatism, Gout and Gouty Arthritis and Allied Affections. By Edmund L. Gros, M.D., of the Faculty of Paris. New York, 1897.

The Present Status of Preventive Means against the Spread of Tuberculosis in the Various States of the Union Critically Reviewed. By S. A. Knopf, M.D. (Paris and Bellevue, N. Y.). New York. Reprint. 1897.

Appendicitis, Report of Four Cases. Craniectomies, with Report of Four Cases. Abdominal Incision for Ascites. Surgical Melange. Ligation of the Common Carotid Artery for Trifacial Neuralgia, with Experiments and Observations upon Dogs. By B. Merrill Ricketts, Ph.B., M.D., Cincinnati, O. Reprints. 1897.

Outlines of Rural Hygiene for Physicians, Students and Sanitarians. By Harvey B. Bashore, M.D., Inspector for the State Board of Health of Pennsylvania. With an Appendix on the Normal Distribution of Chlorine, by Prof. Herbert E. Smith, of Yale University. Illustrated. Philadelphia: The F. A. Davis Co. 1897.

The Student's Guide to Medical Diagnosis. By Samuel Fenwick, M.D., F.R.C.P., Consulting Physician to the London Hospital, and W. Soltan Fenwick, M.D., B.S., Lond., M.R.C.P., Physician to the London Temperance Hospital; Physician to Out-patients at the Evelina Hospital for Sick Children. Philadelphia: P. Blakiston, Son & Co. 1897.

A Manual of Obstetrics. By H. F. A. King, A.M., M.D., Professor of Obstetrics and Diseases of Women and Children in the Medical Department of Columbian University, Washington, D. C., and in the University of Vermont; President of the Washington Obstetrical and Gynecological Society, etc. Seventh edition. With 223 illustrations. Philadelphia and New York: Lea Brothers and Co. 1898.

Original Articles.

THE DIAGNOSTIC AND THERAPEUTIC VALUE OF TUBERCULIN AND ITS DERIVATIVES.¹

BY A. C. KLEBS, M.D., CHICAGO, ILL., AND CITRONELLE, ALA.

SINCE Koch, on the 18th of November, 1890, startled the world with his celebrated communication, scientists and physicians have been eager to do their share in the development of the question arising. The "febrile reaction" which this discovery produced amongst the members of the profession and the laity and the disappointment of the world at large, after it was found that the remedy had still to be found, has but little affected a great progress in internal medicine, much greater than generally is recognized.

Although efforts in bacterio-therapeutics were made before Koch's discovery, the "Tuberculin Era" forms the corner-stone in a new direction of modern therapeutics. It is yet too early to speak with certainty of the therapeutic accomplishments in this line; but the various new facts which have enriched our knowledge and the results of the investigations following have enormous value and have considerably widened our horizon.

Speaking of tuberculin, we have first to agree upon what we understand by this term. There has been a great deal of misunderstanding on this point; and a great many observations, differing in their results, are probably due to the difference in the preparation of tuberculin.

We will first consider Koch's old tuberculin (crude), as that is the preparation we know best and as Koch's newest tuberculin shows essential differences.

Koch's original method of preparing his tuberculin, and the method generally adhered to still, is evaporation by boiling over the water-bath, of the ripe culture of the tubercle bacillus grown on a four to five per cent. glycerine bouillon to one-tenth of its volume. This method of preparation has been adhered to by most experimenters, often with more or less important alterations. If we reflect that the bacillus loses much of its virulency by artificial culture, it is evident that the tuberculin derived from a young culture cannot give the same results as that taken from a culture which has been grown artificially through several generations. This fact is probably the reason why the different tuberculin preparations on the market show different degrees of efficacy. In order to get uniform results it would be of great value to standardize the preparations by a previous animal test. This would greatly assist the comparison of different observations. As matters are now, such comparisons can be made only with great limitations, and a final judgment is almost impossible.

If we ask ourselves what tuberculin is, we are unable to answer in exact terms. The chemical and physiological characteristics have been carefully examined by Koch, Kuehne, Edwin Klebs, W. Hunter, Proskauer, Brieger and others; still, it is yet to be demonstrated what the active principle of tuberculin really is, and to give a plausible explanation of the remarkable reaction caused by it in tuberculous individuals.

In a paper on the value of this preparation for diagnostic and therapeutic purposes we cannot dwell

on the yet unknown features in the action; we can only consider what we know through clinical observation. There are a great many points which merit close attention and a more careful examination, and in working them out we may arrive at the scientific basis.

The observation of the different effects obtained by the inoculation with tubercle bacilli of healthy guinea-pigs and of such animals previously infected led Koch to the discovery of tuberculin. Tuberculin therefore represented, in his opinion, an extract of the active principles of the bacilli and their culture. He regarded them as albuminoid toxins. The selective action of these toxins in tuberculous individuals was remarkable, but no satisfactory scientific explanation has been given for it yet. The general and local reactions represent the chief symptoms of its action. General symptoms such as chills, heaviness of the extremities, cough, etc., accompany the rise of temperature, which is very marked. We have the picture of an acute and short exacerbation of the process, which also can be observed on physical examination in pulmonary cases and which is manifest most markedly in cases of external tuberculosis, lupus, osseous tuberculosis, and also in glandular cases and others.

The practical application of the tuberculin test in bovine tuberculosis, especially developed in Massachusetts, has been rigidly carried out; and the almost unanimous opinion of all observers has established its immense value to the cattle-growers as well as to humanity at large. Much less has been done in this respect in human tuberculosis. A few clinicians only have adhered faithfully to the preparation and use it daily in their practice; all as a diagnostic test, some as a therapeutic agent. The possession of a reliable method to diagnose tuberculosis in its earliest stages is of the greatest value; and it is unfortunate that the great desire to find a "cure" in tuberculin has attracted by far the greatest attention to this part of its activity, while its diagnostic value has almost disappeared.

According to our present knowledge of tuberculosis, we can safely assert that a reliable diagnostic medium for the detection of early cases is of greater value than any specific remedy which we have or may yet discover. Tuberculosis will never, whatever means we employ, be definitively cured "in a hurry"; its pathological anatomy best teaches this. The marvelous cures reported at the time of the "Tuberculin Era," after six or seven weeks' treatment, belong already to the *curiosa* in the history of modern medicine. The time of incubation, when symptoms are not yet manifest, in order to give a name to the condition, the predisposition, which, not explained satisfactorily, is certainly existing in some form, is the period in this disease which merits our full attention. Here the whole organism is prepared, by heredity or other circumstances, for what is to follow, and what the *vox populi* calls consumption. The word "consumption" has done more harm to the successful treatment and prevention of the disease than the disease itself. The laity, and also a great many physicians, have the tendency to put consumption in the same category with what we regard scientifically as its last stage, that is, with great emaciation, fever, pronounced hectic, cough, voluminous expectoration, night-sweats, etc. People have a horror of calling that consumption which is not represented by these symptoms.

¹ Paper read before the Boston Society for Medical Improvement, December 27, 1897.

The physician wishes to spare the "tender feelings" of his patient, and calls it by any other of those names of which our medical phraseology possesses such a great number. Since the discovery of the tubercle bacillus things have somewhat changed, expectoration is examined when obtainable; and, the bacillus found, the diagnosis is established.

The value of this diagnostic aid is evident, but it also has its drawbacks; chiefly because, if negative, it often induces too quick a judgment, which often needs revision. Furthermore, the presence of the bacillus in the expectoration does not signify by any means early tuberculosis; but, on the contrary, an already advanced stage. The bacillus does not reach the bronchi and there mix with the mucus without previous retrograde tissue changes; considerable degeneration of tissue, "breaking down," is necessary in order to eliminate bacilli from the diseased lungs. It is perfectly safe to say, when we find bacilli in the sputum in large numbers and after repeated examinations, that we have before us a case in which the disease has already developed for a longer period than the symptoms indicated.

Furthermore, we have cases in which there is no sputum at all, but with a decided suspicion of tuberculosis. I need only refer to certain cases of adenitis, scrofulosis, lupus and arthritis; cases which, in their clinical aspect are not necessarily typical, but which in regard to prognosis, if tubercular, are very different from other similar affections, and therefore modify entirely the remedial procedure, if we do not wish to take the standpoint that "nothing will help anyhow if tubercular." Such manifestations of the process are so frequently followed by a secondary pulmonary invasion, that they merit close attention for early and exact recognition.

There are other cases with only general marks, which draw our attention to a possibility of beginning tuberculosis, especially those cases of a latent process in early childhood on an hereditary basis. Undoubtedly this is a very frequent occurrence, but we have no direct method of insuring certainty in diagnosis.

We see there is yet a vast field which the discovery of the bacillus and its diagnostic applications has but little developed. When Koch's "lymph" went from hand-to-hand and his observation of its selective action on tuberculous cases was reobserved again and again, when the reactive changes were studied *sub casu*, as in lupus, everybody agreed that an important step had been made towards the discovery of a diagnostic for such cases, not accessible to other methods. The enthusiasm vanished with the disappointment in what Koch thought to be the more valuable part of his discovery — its curative properties.

If we analyze the complex of symptoms which constitute the tuberculin reaction we get the following picture: Sometimes within a few hours after the hypodermic injection of a sufficient quantity of tuberculin we observe a chill of more or less marked intensity, the point of injection becomes slightly painful, elevated above the surface of the skin and reddened; the pulse becomes quicker, often weak, sometimes irregular (in rare cases the pulse grows extremely rapid and collapse may set in); the cough, if present before, becomes more severe, and the expectoration larger in quantity; besides, there follows loss of appetite, tendency to vomiting, general indisposition, heaviness of the extremities and headache — in general, the subjec-

tive symptoms of an acute fever. These symptoms may be present in a more or less marked degree, or some of them wanting; furthermore, graver symptoms have been observed, especially after high doses, for instance, jaundice, diarrhea, vertigo, delirium and coma. Objectively we observe fever, increase of the physical phenomena in the lungs, râles where none were before; sometimes increase of dulness on percussion, and enlargement of the liver and spleen. Albumin in the urine may be observed sometimes; rarely casts (if present, they usually accompany hematuria). In the blood there has been noted an acute leucocytosis, with all the forms of leucocytes (Botkin).

After the infection, with the first general symptoms, notably after a chill, the temperature rises to a considerable height, but seldom remains at the highest point longer than one hour, regaining its former range after several hours, with a complete disappearance of the subjective symptoms. The dose of tuberculin sufficient to produce this rise and fall of the temperature does not create any (or only slight) symptoms in a healthy person or animal.

It has been claimed that this selective action is due to the fact that fever is produced easier in tuberculous individuals than in healthy ones (Rosenbach), that there is what Buchner calls a "latent irritation," which is revived by the injection of tuberculin. This may be correct; nevertheless, it does not explain the local reaction of tubercular tissue which we observe immediately in external tuberculosis, especially in lupus. Everybody who has seen this will remember it. We inject a dose of tuberculin distant from the tubercular focus, and after a short time we observe the inflammatory changes, which are very striking and absolutely limited to the diseased area. Affected glands become more or less painful and swell, joints also show signs of a local reaction. There is no doubt also that in the lungs the same reactive processes are induced. In lupus the numerous autopsies have demonstrated this, though we are able to suspect it by the increase of the auscultatory phenomena *in vivo*.

There is some difference in the intensity of the reaction in respect to the seat of the tubercular affection. It is the most intense in cutaneous (lupus) forms, less in the glandular, osseous and articular. The pulmonary cases hold about the middle place. Furthermore, we may regard it as a rule — and it is very important to note this — that the more advanced the disease, especially if pulmonary and complicated by considerable mixed infection, the less the resulting reaction. In very advanced cases of pulmonary tuberculosis we are often unable to produce any reaction, even with the doses which give decided symptoms and fever in healthy individuals.

Of greater importance still is the question if these reactive changes occur in other diseases. We have to admit that they do occur; but we shall see that this in no way affects the diagnostic value of tuberculin. It cannot be regarded as a diagnostic agent of absolute certainty; its specificity is limited; but we shall be able to make use of it most successfully if we take into account its limitations. We have to consider chiefly two diseases which have many points of resemblance with tuberculosis, namely, syphilis and lepra. Several reliable observers (Straus, Teissier and others) have noted local reactive changes in syphilitic lesions after the injection of small doses of tuberculin; changes always accompanied by a general reaction. In a num-

ber of cases there was no local reaction, while the general symptoms were marked. In lepra larger doses than in lupus are required to produce analogous reactive phenomena. A few observations of reactions in other than tuberculous pulmonary affections are published, but they by no means exclude the possibility of the presence of tuberculous foci.

When we know the limitations to the selective action of tuberculin, its value for diagnostic purposes then becomes evident, and it only remains to investigate its reliability as a test in tuberculous cases. In those cases which we can recognize by other more or less accurate methods its action is different in intensity, as already mentioned; we can observe a decidedly higher intensity in beginning cases of pulmonary tuberculosis, just as in lupus or in laryngeal disease where the smallest, most recently developed foci, which are very easily overlooked, show the most marked aspect of circumscribed inflammation. There are other cases in which, with our other methods, we cannot make a positive diagnosis; I mean especially the latent tuberculosis of children of phthisical parents, which form exists more frequently than is generally thought. In such cases we get a reaction quite often and are astonished, because generally there is no support of the diagnosis other than an "inherited disposition" or, as some insist, a probable direct inheritance. Here we often have children apparently in perfect health, and yet we obtain the marked reaction. On the other side, in very young children, especially in the new-born, it is extremely seldom that a reaction is obtained, even after the injection of doses which in healthy adults produce considerable fever (Schreiber, Kossel). This speaks very much against direct inheritance and for the frequency of early post-partum infection, most likely by means of the milk of a sick mother or cow.

Furthermore there are cases of accidental infection of healthy persons who have handled the cadavers of tuberculous individuals on the post-mortem table. I remember well the case of a laboratory servant of the pathological institute in Würzburg, who submitted himself to the test injection in order to prove its harmlessness in healthy persons. He showed a most marked and typical reaction. On closer examination we found on both his hands several wart-like excrescences which contained tubercle bacilli. A similar observation was made, if I remember rightly, in Leipzig by Tillman. He injected a medical student in apparently good health. The student reacted intensively, with swelling and soreness of the cervical glands. Examination revealed a similar "cadaver tubercle" under the chin. I have also seen cases with marked relative diminution of hemoglobin—in one case as low as 38 per cent., and with all the typical attributes of chlorosis.

In none of my cases have I been able to ascertain any signs suggestive of tuberculosis, except harshness of inspiration over one or both apices. In eight out of eleven cases no expectoration was obtainable, in three I got some mucous sputum, which contained nothing but mouth bacteria. In six of these cases I have been able to produce typical reaction with very small doses of tuberculin—five of them were of tuberculous issue, one doubtful. In none of these cases have I been able to verify the diagnosis of tuberculosis, the time being too short as yet. Still I quite agree with my friend, Dr. Alfred Worcester, that the suspicion of tuberculosis in such cases is so

strong as to be almost a certainty. The tubercular infection of chlorotic girls, especially through the alimentary canal, takes place certainly much oftener than ordinarily supposed; the low percentage, sometimes total absence of hydrochloric acid from the gastric juice in such cases favors this possibility. There have been direct observations of tuberculosis of the mesenteric glands in chlorotic individuals which speaks in favor of this supposition of infection. Perhaps, as Dr. Worcester thinks, the glandular tuberculosis is primary and constitutes often what we name "predisposition to tuberculosis." The result in one of my cases seems to favor this theory of primary glandular infection, as I was able to observe a gradual increase of hemoglobin to normal when I immunized the patient to tuberculin by successive injections with tuberculocidin, not using any other medication.

In general, I can say that I have never seen a case reacting to tuberculin in which I could absolutely exclude all possibility of a tubercular focus and in which the suspicion was not supported by other general indications of tuberculous. I have never regretted this additional support of a general suspicion, as one erroneous diagnosis of tuberculosis does less harm than an entire oversight. It has often been claimed against the practical value of the tuberculin test that it reveals latent foci in cases in which the disease has come to an absolute standstill and in which the patient does not suffer at all from the disease. This is certainly true, but in some of these cases the disease will set in sooner or later with renewed activity, and the recognition of such latent processes, together with rigidly enforced preventive measures, will often obviate the danger threatening in the future.

(To be continued.)

ACUTE DEGENERATIONS OF THE NERVOUS SYSTEM IN DIPHTHERIA.¹

BY JOHN JENKS THOMAS, A.M., M.D.,
From the Pathological Laboratory of the Boston City Hospital.
(Concluded from No. 5, p. 100.)

BEFORE taking up the discussion of the changes found in the nervous system in diphtheria, let us first see what has been found in the heart muscle in these cases of sudden death from heart failure during infectious diseases.

Oertel, Mosler, Leyden and Birch-Hirschfeld have described degenerative changes in the heart muscle.

Leyden found fatty changes in the muscle fibre and increase of the nuclei in the muscular tissue, infiltrations about the blood-vessels, and in two of his three cases areas of myocarditis. The vagus nerve examined in the third case was normal.

Rosenbach described waxy and granular degeneration of the muscle fibres, and also the presence of lymphoid cells, and infiltrations about the vessels, and in the interstitial tissue.

Unruh describes myocarditis in localized areas, and fatty changes of the heart muscle, and argues that in these cases the heart failure does not arise from changes in the nerves, because this is an early symptom, while those, with the paralysis produced by them, appear later. He asks why the nerve to the heart alone should be affected thus early, and not other

¹ This paper will appear in the Medical and Surgical Reports of the Boston City Hospital for 1898.

nerves. He also argues that the cause is muscular because of the dilatation.

Huguenin found granular and hyaline degeneration of the muscle fibres, increase of connective-tissue, and much increase of the nuclei with small hemorrhages. He speaks of parenchymatous and interstitial myocarditis, and endarteritis proliferans. The pneumogastric nerve and medulla he found normal.

Schemm describes fatty and granular degeneration of the heart muscle fibres, with swelling and increase of the nuclei, and a slight hyaline degeneration and atrophy. He states that the connective-tissue was often somewhat rich in cells, and in one case he found extravasations of blood.

Arnheim found only slight changes in the heart. In three out of eight cases there was cloudiness of a few of the muscle fibres, with no fatty degeneration and no areas of myocarditis. In one other case he states that there was myocarditis, the muscle in general being cloudy.

Rabot and Philippe describe granular degeneration of the muscular fibres of the heart, with a slight increase of the nuclei, and with small areas of inflammatory infiltration with lymphoid and connective-tissue cells, and some perivascular infiltration. They found no changes either in the peripheral nerves, or in the central nervous system, and conclude that the essential process in the heart is an interstitial one.

Romberg, in an important paper on the changes in the heart in various infectious diseases, reports eight cases of diphtheria. In these hearts he found albuminoid granulation of the muscle five times; marked once, moderate four times; fatty degeneration five times, always marked; hyaline, or waxy degeneration, was noted as present twice. He also found vacuolization, and enlargement and pigmentation of the nuclei. He found, moreover, in all eight cases, interstitial alterations, an infiltration of the connective tissue. The amount of infiltration varied, as did also its extent. He found, too, periarteritis, and rarely an infiltration about the ganglion cells of the heart. Hemorrhage was rare. In the eight cases he found myocarditis, marked twice, moderate twice, and slight four times; pericarditis, marked once, moderate twice, slight twice, and absent three times; endocarditis, marked three times, and absent five times.

Welch and Flexner speak of finding more or less intense fatty degeneration of the heart muscle with fragmentation of the nuclei of the muscle fibres.

Hesse found parenchymatous degeneration of the heart muscle, shown by the loss of the striations, cloudiness, vacuolization and the presence of fat. He also describes infiltrations with round cells of the interstitial tissue and about the vessels, as well as hemorrhages. He examined 29 cases. He says that the poisons of infectious diseases produce in all organs parenchymatous degenerations, but, in addition, alterations of the vessels play an important part. The latter are especially important, and may find their expression either in abnormal hyperemia, a weakening of the vessel wall, which leads to hemorrhage, or in an abnormal permeability for round cells, which leads to cell infiltration. In the heart muscle he thinks the most important factors are the dilatation of the small vessels, the hemorrhages and the perivascular infiltrations; but concludes that the heart failure in these cases of sudden death in diphtheria is due to poisoning of the heart.

Preisz, in one case of death from heart failure in diphtheria, found that the muscle fibres of the heart had lost their striations, and were granular; while the nerve cells, stained by Nissl's method, showed no changes.

Mollard and Regaud, in a series of experiments upon animals with the toxin of diphtheria, found in the hearts parenchymatous degeneration, as shown by loss of the striations of the muscle fibres, the formation of vacuoles, exudations from the muscle, and fatty degeneration, while the nuclei were swollen and vesicular. They considered the changes in the connective tissue to be secondary, and state that they found only an infiltration of leucocytes. They also describe degenerations of the muscle fibres of the vessel walls, and infiltration of the walls. They state that in acute and sub-acute cases they found no hyperplasia of the connective-tissue elements. They regard the infiltrations which they found as consisting of leucocytes, and state that this is secondary, evidently looking upon the process as one of repair, and the cells as phagocytic. They state that the amount of change found varied in the different individuals, and in parts of the same heart, a fact also mentioned by others.

Vincent examined a case of sudden death in diphtheria in which the fibres of the heart muscle showed no changes except a loss of striation. There was also an increase of the nuclei of the sarcolemma, and about the blood-vessels the "connective-tissue cells were increased." The blood-vessels were dilated. In the medulla the vessels were dilated, but there was no infiltration or hemorrhage, and no changes in the nerve cells. In the pneumogastric nerve the myelin sheath was thickened in places but there was no marked degeneration. The sympathetic nerve was normal. In the lower cervical sympathetic ganglia some of the cells showed granular degeneration. In the cardiac plexus he found marked changes. There was intense parenchymatous degeneration and absence of the axis cylinder. The capillaries were dilated, and the nerve cells were granular, vacuolated, and in some of them there was loss of the nucleus and nucleolus.

Thus we see that the changes in the heart in this disease vary somewhat in character and amount. Of the significance of the changes we shall have more to say.

Among the earlier writers on the changes in the nervous system in diphtheria is Dejerine. He found in 1878 a degenerative atrophy, characterized by increase of nuclei, fragmentation of the myelin sheaths in the anterior nerve roots, while the posterior roots did not seem changed. In the anterior horns of the gray matter of the cord he found fewer nerve cells than normal, and some atrophied cells, dilatation of the vessels, and increase of the neuroglia. The white substance was normal. He concluded that there was a parenchymatous neuritis, no changes in the posterior roots, and an inflammatory process in the gray matter, though he states that he did not find vacuolated and swollen cells, as he did in myelitis.

Leiden, in 1880, described the changes of a parenchymatous neuritis with excellent drawings, though not with especial reference to diphtheria.

P. Meyer, in the following year, examining the nervous structures in diphtheria, described extensive parenchymatous degeneration of the nerves, and slight changes in the nerve cells, consisting in an absence of the cell processes and poorly staining nuclei. The white matter was normal.

Arnheim, besides the changes in the heart muscle spoken of above, found cloudiness of the diaphragm and skeletal muscles. He found in all the nerves examined an extensive degeneration as described by Eichhorst, Leyden and Meyer. The perineurium and endoneurium were without changes. In most of the nerves there was a hyperemia of the nerve sheaths and of the endoneural vessels. In one case he found extensive capillary hemorrhages, both in the nerves and in the cord. In the latter they were almost exclusively in the neighborhood of the vessels of the gray substance, and at times close to the cells of the anterior horn. In the other cases he sometimes found hyperemia and hemorrhages in the peripheral nerves. The ganglion cells were normal. The cells of the vagus nucleus were normal. There were no changes in the white matter of the cord, or in the medulla. He sums up the changes found as (1) hyperemia and capillary hemorrhages in the peripheral nerves and cord; (2) slight inflammatory changes in the muscles; (3) marked parenchymatous and interstitial degeneration of nerve fibres; (4) negative results in nerve cells; (5) no systematic disease of the cord.

Hochhaus describes parenchymatous clouding of the muscles, most marked in the paralyzed muscles, less in the paretic ones. In the nerves he describes only slight interstitial changes, with increase of the nuclei, and dilatation of the vessels. The brain and spinal cord were normal. We can, however, neglect his statements, as most of the nerves were examined only when fresh, in salt solution, and only a few in osmic acid.

Bikeles, examining the spinal cord by Marchi's method, found degeneration in the posterior columns, and in the posterior nerve roots, and thinks he has found in this fact an explanation of the ataxia often seen in diphtheritic paralysis.

Cavazzani found more marked changes in the central nervous system. He describes in infectious processes a degeneration of the nerve cells with changes in the nuclei, such as vacuolization and atrophy.

Preis, in speaking of the changes in the nervous system in diphtheria, describes a degeneration of the peripheral nerves and of the vagus, and in the cord microscopical hemorrhages, chiefly in the gray matter, and degenerative changes of some of the ganglion cells of the anterior horn. The white substance was normal, except in his second case, where he found quite a marked degeneration of the posterior columns of the cord.

Of experimental work upon the nerve lesions in diphtheria the most important is that of Babes, Martin, Enriquez and Hallion, and Crocq.

Babes states that in the cord and brain, besides hyperemia, general edema and slight softening, there could be made out numerous irregular diffuse red, softened areas. These were especially well marked in the lateral and posterior columns of the cord.

Martin found degenerations of the nerves in animals after repeated small doses of the toxins of diphtheria, and also after a single large dose. He describes a parenchymatous degeneration of the nerve fibres. The sheath of Schwann is affected first, becoming granular, and later breaking up, while the axis cylinder is affected later, first becoming attenuated at some point, and then breaking at this point, and disappearing beyond. He also states that different branches of the same nerve are often affected to a very different degree, and even the same fibre differently at different points. He found

this process affecting the sensory nerves to the same extent as the motor ones. The sympathetic nerve was also affected. He found degenerations in the muscles, and states that this was "proportional to the degree of nerve change." The spinal ganglia, the cord, medulla and brain were found normal in all cases.

Enriquez and Hallion describe, as the result of experiments upon dogs, a vascular dilatation in the gray matter of the cord, with hemorrhages and myelitis, and myelitis of the white substance. There was also increase of the neuroglia, nerve fibres in various stages of destruction, granular nerve cells, and dilated capillaries. In addition, there was a parenchymatous generation of the nerve roots. They think this was myelitis of vascular origin.

Crocq, experimenting upon rabbits, describes the changes produced in the nerves as a granular condition, fragmentation and fatty degeneration of the myelin sheaths, and disappearance of the axis cylinder, with multiplication of the nuclei. This he found most marked in the anterior roots, and slight in the posterior ones. He also describes changes in the spinal cord. The nerve cells were swollen and stained poorly; the nuclei and processes had disappeared; there was proliferation of the neuroglia and atrophy of nerve cells, many of which had disappeared and been replaced by sclerotic tissue. The white matter was only exceptionally altered. In the medulla there was tumefaction of the cells in the lower part, while in the upper part they had remained normal. The cranial nerves were unaffected.

The cases reported in this paper were mostly cases of diphtheria, although a few cases of mixed infection and one of pneumonia have been added, as the nervous changes of one infectious disease are similar to those of others, varying more in degree, or in the liability to affect the nervous system, than in kind. The examinations again were not complete as to all parts of the nervous system except in a few cases, and the chief object of these examinations was to discover whether recent acute degeneration resulting in the breaking down of nervous structures into fat had taken place, and more especially in the peripheral nerves. In spite of the fragmentary character of the work, certain general conclusions seem warranted even at this point.

One of these is that the chief change of the nervous system in diphtheria is an acute degenerative process, chiefly parenchymatous, most marked in the peripheral nerves, affecting both the motor and sensory nerves. The myelin sheath is affected first, and later also the axis cylinder, generally without infiltration, or much multiplication of the nuclei. In this, our results correspond pretty closely with those of other investigators, both clinical and experimental, as Preis, Martin and Crocq, as well as earlier observers, such as Mendel, Leyden and others. Nor do these results stand at marked variance with those authors who have found changes in the central nervous system, though hemorrhages and myelitis were not found, yet dilatation of the capillaries was observed, and the more marked changes certainly seem possible, though probably rare. The most marked change found in the central nervous system, and that in the brain, as well as the cord, was the presence of fat here, showing that the effect of the toxic substances upon the nerve structures is not confined to the peripheral nerves. These degenerations were diffuse, but, if anything, more marked in the posterior columns of the cord, as has been noted also

by Bikeles; a fact difficult of interpretation unless we assume a less power of resistance to injurious influences in these nerve fibres than is found in others. Indications of the existence of such a fact are not wanting, as shown by the large number of diseases in which degenerative processes have been observed in this region, as for example in pernicious anemia, pellagra, leprosy and others. Perhaps this affection of the posterior columns may account, as Bikeles suggests, for the ataxia so often observed in diphtheritic paralysis. That the cranial nerves do not always escape the process affecting the nervous system so widely is also certain, as shown by the marked degeneration of the fifth nerve found in one case. These results agree with those of Martin, in that the posterior nerve roots were found fully as much affected as the anterior ones. In regard to the condition of the nerve cells one is not warranted in drawing any very definite conclusions from the results obtained by means of the stains used, but certainly there was no myelitis present, and no condition resembling anterior poliomyelitis such as Dejerine thought he had discovered. It seems quite probable, however, that some of the nerve cells would show changes, at least in their finer structure, where the nerve processes have suffered so widely.

The processes found in the specimens of heart muscle examined correspond closely to those previously reported by others. There was a parenchymatous degeneration of the muscle fibres, shown by loss of the striations, vacuolization, and fatty degeneration. An increase of the muscle nuclei was not present, though the nuclei were quite numerous; but this is due to the fact that the hearts examined were from children in whom, from the small size of the fibres, the nuclei appear to be more numerous. The nuclei showed no marked degenerative changes. The dilatation of the vessels was marked, and also the infiltration, both in the myocardium and in the interstitial tissue. This infiltration consisted mostly of small, round, lymphoid cells, with a few larger cells, the nature of which could not be accurately determined because of the methods of hardening used, — formol, and Müller's fluid. Certainly leucocytes played no important part in the process, contrary to the statements of Mollard and Regaud. Again, in agreement with other observers, these changes showed considerable variation in the different cases. The most constant was the interstitial process. The fact that changes were found, more or less marked, in all the pneumogastric nerves examined, seems to point to considerable influence upon the mode of death in the cases of sudden death. The objection of Unruh that this accident is an early one, and the paralysis a late one, does not hold, when we remember that sudden death may occur late in the disease, and the paralysis sometimes appears early, as was seen quite frequently in the cases reported in this paper. The view of Hesse, that the heart failure results from the effects of the poison of the disease upon the heart, rather than as a result either of the muscle or of the nerve degeneration, seems nearer the truth. We must ask, however, in what way the poison acts. It seems most probable that in such cases it acts through the nerve structures, interfering with their normal function, and that this may occur before degenerative processes have proceeded far does not lessen in any way the importance of their occurrence, but would rather lead us to place greater weight upon slight changes, where other obvious causes of death, as markedly degener-

ated heart muscle, do not exist. The variability of the amount of changes, both in the heart muscle and in the nerves, may point to a varying cause for these cases of sudden death, but the argument in favor of the disturbance of the functions of the nerve seems strongest.

To sum up, the changes in the nervous system produced by diphtheria are: (1) a marked parenchymatous degeneration of the peripheral nerves, sometimes accompanied by an interstitial process, and hyperemia and hemorrhages; (2) acute diffuse parenchymatous degenerations of the nerve fibres of the cord and brain; (3) no changes, or but slight ones in the nerve cells; (4) acute parenchymatous and interstitial changes in the muscles, especially the heart muscle; (5) occasional hyperemia, or infiltration, or hemorrhage in the brain or cord, in rare cases severe enough to produce permanent troubles, such as the cases of multiple sclerosis and of hemiplegia which have been observed. Finally, the probability that the cases of sudden death from heart failure in diphtheria during the disease, or convalescence, are due to the effects of the toxic substances produced in the disease upon the nerve structures of the heart.

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Clinical Department.

TWO CASES OF RUPTURE OF VISCERA.

BY GEORGE H. MONKS, M.D. AND F. B. LUND, M.D., BOSTON.

THE two following cases of rupture of the viscera by contusion without penetrating wound of the abdominal wall are reported as illustrative of the extensive and fatal damage to the viscera which may result from such injuries, and of the imperative necessity of exploratory abdominal section in cases where there is a history of injuries of this character, and the symptoms indicate the possibility of rupture of the viscera. The first case also shows that extensive rupture of the viscera may occur without causing symptoms until extensive hemorrhage or extravasation of visceral contents has occurred, which may be delayed for several hours. Meanwhile the presence of multiple injuries to the extremities may result in symptoms which obscure and mask the presence of serious visceral lesions.

CASE I. Rupture of the bladder (intraperitoneal), rupture of mesentery, fracture of both bones of leg, multiple contusions. Suture of bladder, resection of ten inches of small intestine. Death.

H. K., thirty-two years of age, married, German. Was admitted to the service of Dr. Geo. H. Monks at the Boston City Hospital late in the evening of September 27, 1887. He had been drinking moderately during the evening, and had walked into a passageway between two buildings intending to urinate, and had fallen down a flight of six or eight stone steps, doubling his right leg under him. He found he could not get up, and felt faint and bruised all over. He did not vomit, he said, and had no pain in the abdomen. He had called for help, a police ambulance was summoned, and he was brought to the City Hospital.

On examination he was found to be a well-developed rather fat man, not intoxicated, although his breath

smelt of alcohol. He had severe pain in his right leg, and was found to have a fracture of the right tibia and fibula about three inches above the ankle, with marked anterior displacement of the lower fragment of the tibia. There was an abrasion over the left olecranon process, and a contusion with ecchymosis over the flexor surface of the left forearm. There was no pain or tenderness of the abdomen. The leg was dressed by the application of a pillow and side-splints, and he was put to bed in the casualty ward.

The next morning about 8 o'clock he complained of pain in the abdomen and inability to pass urine. A soft-rubber catheter was passed without difficulty, and seven ounces of rather dark blood, but no urine, escaped. The pulse was 100 and weak, the patient was sweating and showed evidence of shock. There was slight tenderness over the lower abdomen, and dullness in both flanks. He was seen by Dr. George H. Monks, who advised immediate operation, which he at once performed under ether. A median incision extending from just below the umbilicus to the pubes disclosed edema of the sub-peritoneal tissue, and on opening the peritoneal cavity a considerable amount of urine escaped. A longitudinal rent, three inches long, was found extending vertically in the median line of the fundus of the bladder. A piece of small intestine, ten inches long, was found completely torn from the mesenteric border, black and gangrenous, lying in the bottom of the pelvis. The intestine was not ruptured, so that there had been no escape of intestinal contents. There had evidently been free bleeding from the torn mesenteric vessels, but at the time of the operation this had ceased, and the mouths of the vessels were plugged with clots.

The rent in the bladder was closed by two layers of silk sutures, the deeper (interrupted) including and inverting the mucous and muscular coats, and the outer (continuous) the peritoneum. The torn mesentery and separated intestine were excised and an end to end anastomosis performed by means of the Murphy button. The edges of the mesentery were united by a continuous suture of fine silk. The abdomen was thoroughly flushed with hot sterilized salt solution, gauze drains were carried down to the sutured bladder and intestine through the lower angle of the wound, and the upper part was closed by silk sutures. An aseptic gauze dressing was applied to the abdominal wound, a catheter was passed through the urethra and tied in, drainage was established by connecting the catheter by a rubber tube ending in a bottle suspended from the bed. The patient's condition was remarkably improved by flushing the abdomen with salt solution, and at the close of the operation, which lasted about an hour and twenty minutes, his pulse was stronger than it had been at the beginning.

On November 29th he was very comfortable. There was copious drainage of serum by the gauze wicks so that several changes of the dressing were required. Considerable bloody urine was drained by the catheter.

November 30th. The patient developed a severe cough and pain in the right side; the pulse grew weaker and more rapid.

December 1st. The gauze wick was removed and another inserted. Considerable drainage of serum from the dressing. Toward evening the pulse grew rapid and weak, the patient gradually sank.

He died December 3d at 3.55 A. M. Autopsy was refused.

CASE II. Contusion of abdomen, with rupture of ileum and fecal extravasation. Enterorrhaphy. Death. Autopsy.

W. E., age forty-seven, married, carpenter; was admitted to the service of Dr. Geo. H. Monks, at the Boston City Hospital at 7 P. M. on November 20, 1897. At 4.20 P. M., while tending a circular saw in Cambridge, a piece of pine board about two feet long by a foot wide flew off from the saw with great suddenness and violence, an angle of the board striking him in the left iliac region of the abdomen. The blow caught him unprepared, so that the abdominal muscles were relaxed at the time. He felt faint at first, but was able to walk about, and the pain was slight for about ten minutes. After that time he was attacked by severe abdominal pain and vomiting. A carriage was called and he was taken to his home on St. James Avenue, Boston, where he arrived at about 5.15. There he had another attack of severe pain and vomiting and syncope.

Dr. W. H. Prescott was called, administered morphine, and advised his immediate removal to the hospital, where he arrived at 7 P. M. At 8 P. M. he was seen by Dr. F. B. Lund who found the following condition:

The patient was a tall, thin, delicate-looking man, slightly drowsy, and with contracted pupils (morphine). The skin was moist, face pale and eyes hollow. The pulse was 100 and of good strength, and the temperature 101° . There was marked rigidity of the muscles of the abdominal walls, and marked tenderness and muscular spasm on pressure over the lower part of the abdomen, especially in the left iliac region, where there was a slight contusion, with ecchymosis of the abdominal wall. There was dulness over the lower abdomen extending half-way to the umbilicus. Four ounces of urine, showing no tinge of blood, were drawn by a catheter. A diagnosis of probable rupture of the intestine was made, operation advised and immediately performed.

On making an incision from the umbilicus nearly to the symphysis pubis, the subperitoneal fat was found ecchymotic. On opening the abdomen there was an escape of fluid feces. Exploration quickly revealed an oval-shaped rent in the small intestine about one inch long by three-fourths of an inch wide, the long diameter parallel with the axis of the bowel, situated on the border of the intestine opposite the mesenteric attachment. There was a small rent the size of a pea, on the left side of the intestine between the larger rent and the mesenteric attachment. The edges of the larger rent were ragged and contused. A V-shaped piece of the bowel, including the rent, but not dividing the mesenteric border was excised, and the intestine united transversely by the Cushing right-angled continuous suture, involving the peritoneal and muscular coats, and inverting the edges. This suture was reinforced by several interrupted quilted sutures.

The loops of bowel in the vicinity of the rent were injected, the peritoneal covering was rough, and covered with yellow flakes of fibrin. These flakes were removed by sponging, the entire small intestine was allowed to escape from the abdominal cavity and flushed with salt solution, and the abdominal cavity was also washed out with great care, special attention being paid to the pelvis and lumbar regions. Drainage was provided by a glass tube and three strands of sterile gauze passed to the bottom of the pelvis, and the

wound closed. The patient was under ether about an hour and a quarter, and the shock was slight.

For the first three days after the operation there was considerable abdominal distention, but the bowels moved freely on the second day. The temperature fell to normal and remained there, but the pulse continued rapid, and the skin was yellow and eyes hollow. A sufficient amount of nourishment was taken, and on the fourth and fifth day the patient was bright and hopeful. On the sixth day the abnormal distention had entirely disappeared. The abdominal wound was clean, and everything looked well except the rapidity of the pulse and the wretched facies of the patient.

On the 27th the pulse began to grow weaker and more rapid; there was slight tenderness over the lower abdomen. Rectal examination failed to reveal the presence of a suspected pelvic abscess. On this and the following day there was obstinate diarrhea, but no vomiting.

On the 28th slight distention of the lower part of the abdomen occurred, separating the sides of the wound at the lower angle and disclosing flakes of fibrin in the walls of coils of distended small intestine.

On the 29th there was a troublesome cough. The conjunctivæ were injected, the patient looked much worse, the pulse weakened in spite of stimulation, and death occurred at 4.45 P. M.

On the 30th Dr. F. B. Mallory performed the autopsy, at which the following conditions were found: The jejunum was much distended, and the intestinal coils in the lower part of the abdomen were covered with fibrinous exudation. The intestinal suture was in the lower part of the jejunum, and was perfectly tight. On gently tearing away the adhesions of the sigmoid flexure to the left ramus of the pubes an abscess cavity about the size of a walnut was found lying between the pubes and the left side of the bladder. This abscess communicated with the peritoneal cavity by a ragged opening. The walls of the abscess were sponge-like, and the interstices filled with pus, thick and brownish-yellow in color. The left femoral vein was occluded by a dark clot. There was a rather dark area of solidification in the posterior portion of the lower lobe of the left lung, and a small amount of pus in the bronchi. Cultures from the liver and kidney showed the presence of the staphylococcus pyogenes aureus and colon bacillus. The colon bacillus was found in the lung. The anatomical diagnosis was, sutured intestine, abscess between left ramus of pubes and bladder, acute fibrino-purulent peritonitis, broncho-pneumonia.

In this case death undoubtedly resulted from general peritonitis resulting from the bursting of the abscess between the bladder and pubic ramus into the peritoneal cavity. The blow which ruptured the intestine having fallen upon the left inguinal region, resulted in all probability in a subperitoneal hematoma between the left ramus of the pubes and the bladder. This hematoma undoubtedly became infected by the extravasated feces, and its gradual suppuration was the reason for the failure of the patient's pulse to fall to normal, and of his continued bad look. The seventh day was probably the date at which it began to leak into the abdominal cavity. The abscess was so small and so protected by the bony wall of the pubes as to give on abdominal palpation no evidence of its presence except slight local tenderness, which was attributed to the contusion of the abdominal wall, the tem-

perature remaining normal up to within two days of death; and the patient's weak pulse and generally poor condition rendered exploration in the absence of localizing symptoms undesirable. No pus was at any time found in the bottom of the pelvis when the drainage gauze was changed.

The high position of the abscess rendered it inaccessible to rectal examination.

Sections of the sutured intestine made and stained by Dr. E. H. Nichols showed that firm union of the sutured edges had taken place by organized fibrous tissue, thus demonstrating that with sutured intestine permanent repair is completed within eight days.

A CASE OF RUPTURE OF THE SMALL INTESTINE FROM CONTUSION OF THE ABDOMEN; RESECTION OF THE BOWEL FIVE HOURS AFTER THE INJURY; RECOVERY.

BY FRANCIS S. WATSON, M.D., BOSTON.

The patient, a young man twenty-one years of age, was riding on a bicycle on December 1st, when he was struck in the upper part of the abdomen by the end of the pole of an express cart coming in the opposite direction. He was thrown from his wheel, "the wind knocked out of him." He recovered himself soon, and was driven at once to the Boston City Hospital. The accident happened at half-past five in the afternoon, and about five hours after he had taken food.

On arriving at the hospital his only symptom was slight pain and tenderness at the seat of injury, and he felt so well that he asked to be allowed to go home. He was kept, however. Three hours later he began to have general abdominal pain and tenderness, which steadily increased in severity. The temperature rose quickly to 102° F, and the pulse to 100.

I saw the patient five hours after the injury occurred. At this time there was marked rigidity of the abdominal muscles, great tenderness and pain over the abdomen, definitely localized. Pulse and temperature as stated above. There was no sign of shock, and the patient's color was good. On the upper part of the abdomen on the left side a little below the free border of the ribs was a slight red ecchymosis, and lower down on the opposite side were two similar marks somewhat smaller. There was no abdominal distention.

The abdomen was opened by a short incision in the median line half-way between the umbilicus and the ensiform cartilage. In the first eight inches of the small intestine drawn out of the wound two rents in the bowel were encountered; the larger was complete and involved half the circumference of the gut. The smaller one was partial, involving the peritoneal covering and a part of the muscular coat only. Beginning peritonitis was present. The entire length of the small intestine was involved in the inflammatory process, the rest of the bowel was not yet affected. The peritoneal covering of the small intestine was thickened, infiltrated and opaque. Its surface was occupied in many places by flakes of grayish adherent lymph, and the blood-vessels were markedly congested. The mesentery presented corresponding appearances in many parts. There was no extravasation of intestinal contents to be found. The mucous membrane was everted and rolled out over the edges

of the large rent, which were as sharply defined as though cut with a knife. There was no evidence of hemorrhage of importance. Five inches of the intestine, including in it both rents, was resected, and the bowel was then united by a fine silk suture applied after the manner of Dr. C. W. Cushing's right-angled suture. The whole of the small intestine was then rapidly examined and lightly washed with sterile saline solution at the same time. The peritoneal cavity was irrigated quickly with the same solution, and a considerable quantity of this fluid was left within the abdomen. The external wound was then sutured tight with one row of silk sutures.

The patient was fed by nutrient enemata for four days after the operation; broths and beef-tea were then given by the mouth until the sixteenth day, when solid food was begun. The patient had an entirely uneventful recovery, without developing a single unfavorable symptom. He was allowed to get up on the twenty-first day, and went home on the twenty-fourth, perfectly well.

This case illustrates once more certain important points in connection with the subject of contusions of the abdominal wall, the principal ones of which are these: the necessity of recognizing the frequent occurrence of serious lesions of the abdominal viscera resulting from severe contusions of the abdominal wall, without penetration; that the absence of shock and external signs of severe injury, rise of temperature or pulse within the first few hours after the injury, furnish no proof of the absence of serious intra-abdominal lesion; the occurrence at any time within several days even, after the injury, of abdominal pain and tenderness, rigidity of the abdominal muscles, abdominal distention (whether singly or in combination), and especially if associated with vomiting, rise of temperature and pulse or a subnormal temperature, should be taken as very strong evidence of rupture or perforation of the intestine or stomach, which is the most frequent lesion produced by violent abdominal contusions. If signs of internal hemorrhage and shock are present, the probability of this lesion or of rupture of the liver is, of course, greatly increased.

These facts cannot be too strongly insisted upon, for upon the early recognition of the true nature of the condition rests the patient's chance of being saved in the only way in which this can be done, namely, by prompt laparotomy. There should be no waiting to see if the patient will not be a little better to-morrow before summoning the surgeon.

The patient is, practically speaking, sure to die if not operated upon. The mortality of cases that are operated upon is high, but it is undoubtedly true that a considerable part of the fatal results have been due to delay. Were all the cases operated upon within the first few hours, as this one was, they would yield I am sure very favorable results.

THE ANTITOXINS SOLD IN PARIS.—The health authorities of Paris have discovered that, although there is a law to the contrary, certain so-called antitoxic serums are being made and sold in that city by unauthorized chemists. A so-called tuberculin offered for sale there has been recently found to be an inert solution, and it is feared that many of the other so-called antitoxins are likewise innocent of the properties which they claim to possess.

Medical Progress.

RECENT PROGRESS IN NEUROLOGY.

BY PHILIP COOMBS KNAPP, A.M., M.D.

(Concluded from No. 5, p. 113.)

HEMIANOPSIA.

THE occasional occurrence of transitory hemianopsia in migraine is well known. Harris⁹ has recently noted it also as a transitory symptom in four cases of unilateral convulsions, and, after a careful review of the whole subject, he draws the following conclusions: Hemianopsia, rarely binasal, more commonly lateral and left sided, with accompanying constriction of the remaining half fields, may occur as a temporary phenomenon in hysteria. Hemianopsia due to a vascular lesion of the cuneus, of sudden onset, may begin with marked or total loss of vision, probably from inhibition of the other centre. The cortical centres are not divided into centres for light, form and color, and hemiachromatopsia may be due to a lesion anywhere between the chiasma and the cortex. Quadrantic hemianopsia may sometimes be due to a lesion in the internal capsule. The macular region of the retina is invariably supplied with nerve fibres on the same plan as the rest of the retina, each side from the corresponding side of the brain; in all cases of transient hemianopsia the dividing line invariably passes through the fixation point; the cortical centre for the macular region in the cuneus, however, is less liable to complete destruction and recovers earlier than the rest of the centre. Cases of persistent hemianopsia where the dividing line passes to one side of the fixation point are to be explained by the escape or partial recovery of the macular centre, or by the education of a new fixation point. Hemipic visual spectra, such as scintillating scotoma, etc., are due to a discharge in the cuneus, but more complex phenomena, such as faces, etc., are elaborated in a higher centre, possibly the angular gyrus, and they occur in the half field only from reflex irritation by a lesion near the cuneus or the optic tract. Double hemianopsia does not necessarily cause complete blindness, as there may be a small area of central vision indicating the escape or recovery of the macular centre. The hemianopsia in migraine is due to an epileptic discharge, which may originate near the centre in the cuneus and sometimes proceed no farther, causing simply a temporary hemianopsia; at other times it may cause a unilateral convulsion without loss of consciousness, and at others a typical epileptic fit. Transient hemianopsia in such attacks may last for twenty-four hours or more, and may be due to vascular softening adjacent to but not involving the visual centre or path; it is rare in ordinary Jacksonian epilepsy, and is not apt to occur unless the visual centre be slightly damaged or hypersensitive and prone to spontaneous discharge, as in migraine. Such transient hemianopsia may also occur in the unilateral convulsions of general paralysis or possibly in uremia. The auditory centre may in like manner be paralyzed through spread of an epileptic discharge.

ACROMÉGALY.

In thirty autopsies upon patients with acromegaly Tamburini¹⁰ has found that there was always a

tumor of the hypophysis. This tumor is usually due to a simple hypertrophy of the gland or a complete adenoma of the organ in which the principal elements of the pituitary body are preserved. In the crania of twelve giants there was found an enlargement and an excavation of the sella turcica, which leads to the belief that in these cases there was always a tumor of the hypophysis. Pathological growth of the bones, either during the period of formation and evolution of the organism (gigantism), or during a more advanced period (acromegaly) is always accompanied with tumor of the hypophysis. The fact that we never find atrophy of the hypophysis in acromegaly and that we never find symptoms of acromegaly in atypical tumors of the hypophysis shows that the disease does not depend upon the abolition of function of this organ. The constant presence of tumor of the hypophysis in acromegaly and gigantism and the nature of the tumor (total hypertrophy or typical adenoma of the organ with preservation of its constituent elements) favor the hypothesis that acromegaly is due to excess of function of the pituitary body. He does not attempt in this way to explain the pathogenic mechanism of the disease and, comparing acromegaly to exophthalmic goitre, he believes in an indirect intervention of the nervous system.

HEMORRHAGE IN NEURASTHENIA.

Ausset¹¹ calls attention for the first time to hemorrhage from the mucous membranes without any appreciable lesion sometimes observed in neurasthenics. He has collected six cases, two of which came under his own observation, in which there were attacks of hematemesis at various intervals of time, sometimes of a considerable amount, the patient vomiting nearly a quart of blood in an attack. The patients presented typical symptoms of neurasthenia, the attacks often came on as a result of some exhaustion or excitement. In a seventh case there were uterine hemorrhages. The hemorrhages had come on at varying intervals through a period of many years and the most careful examination failed to reveal any structural disease of the stomach or uterus. Similar hemorrhages have not infrequently been noted in hysteria. The vomited fluid in one case was analyzed and found to be blood mixed with saliva and gastric juice. The patients had all presented other symptoms of vaso-motor and gastric disturbance such as are common in neurasthenia, and the attacks always followed physical fatigue, too severe intellectual work, strong emotion, great joy or profound chagrin. They were preceded by an indefinite malaise, an inexplicable disquiet, and a feeling of impending trouble, but they came on rather suddenly, without special warning, and unattended with pain or any special sensation. After the attacks the patient felt weak and the ordinary neurasthenic symptoms were worse, but in a few days they returned to their usual condition. The trouble seems to occur only in confirmed neurasthenia, but it is of itself of no bad significance and does not affect the prognosis. It is due, he believes, to a vaso-motor paralysis, but there is also some action of the glandular elements; there is a rupture of the blood-vessels in the capillary net-work beneath the glandular epithelium, and the blood mixes with the glandular secretion and is expelled with it through the excretory canal of the gland.

⁹ Brain, xx, 308, Autumn, 1897.

¹⁰ Revue Neurologique, November 15, 1897.

¹¹ Revue de Médecine, September, 1897.

HYSTERIA IN CHILDHOOD.

Bruno¹² has recently published an important monograph upon this somewhat neglected subject. One of the chief differences between the hysteria of childhood and that of adult life is that the former often presents itself in a monosymptomatic form, as a paralysis, a contracture, or a limited spasm, and that sensory disturbances, especially anesthesia and the hysterogenous or hysterofrenic zones, are often absent. Paralytic conditions, contractures, astasia-abasia, aphonia, mutism, stammering and obstinate blepharospasm are important symptoms. Symptoms of motor irritation, such as tremor, chorea, grimaces, tics and spasm are not infrequent, and attacks of a psychical nature, delirium, somnambulism, chorea magna and obsessions are also of importance. The commonest sensory disturbance is hyperesthesia of the joints, but amblyopia and amaurosis are occasionally observed. Boys are as frequently affected as girls. The affection is most commonly seen between the ages of seven and fourteen, but it is not rare in children under six. The severer cases were more frequently seen in children from the country, especially from lonely and distant villages. Poverty and defective training favor the onset of the trouble. The influence of heredity is somewhat exaggerated, but it is important. Direct imitation of alarming symptoms of any disease which may come to the child's notice, together with defective training, plays a very important part. A nervous and hysterical mother may train a child badly, but the bad influence of an alcoholic father must not be ignored. The symptoms are often of psychical origin and are associated with defective volition; all of them may be produced more or less voluntarily, but loss of knee-jerk, degenerative atrophy, and similar "organic" symptoms form no part of uncomplicated hysteria; immobile pupils, fever, burns, etc., which have been described as hysterical symptoms, awaken a suspicion of deceit, but are not observed in children. The disregard of anatomical rules (paralysis on the same side as an injury to the head), the fact that the attacks are easily excited and as easily suppressed, the affection of only certain functions of muscles (as in astasia-abasia) point to the psychical origin of the trouble. It is often hard to draw the line between genuine hysterical symptoms and conscious simulation; to the natural tendency of hysterical patients to exaggerate is added the lively imagination of childhood. The prognosis is distinctly better than in hysteria of adults; not only the individual symptoms but the hysteria itself may be cured. Before the age of six, and after the age of twelve, when the influence of puberty begins to be felt, the prognosis is worse. The longer the symptoms last, and the oftener attempts at cure have failed, the less likelihood is there of cure. The question of treatment is very thoroughly considered. Separation from parents and surroundings takes of course the first place, but, in addition, special treatment is often necessary. Except for tonic and strengthening treatment the only forms of treatment that are of advantage are those that affect the child's mind. Judicious neglect is of great advantage, especially in all paroxysmal attacks. Strong faradism and cold douches are of benefit, partly because they are unpleasant to the child, and thus lead him to control his symptoms. These form a part of what Bruno calls

the treatment by "surprise," the direct command to "rise up and walk," on which he lays much stress, pushing it even to the point in some cases of direct corporal punishment. Suggestion may be of value, but he has not made use of it in the hypnotic state.

Ilberg, in reviewing Bruno's monograph,¹³ takes just exception to the more heroic measures, believing that they often do harm to nervous children. Suggestion without hypnotism, gentle but firm commands, and careful educational measures will give better results with far less danger. Strümpell has stated that the "surprise" method produces either miraculous cures or no cures at all. But miraculous cures are rare, and, if they fail, they do much harm. Bruno, while admitting the occasional good results of illegitimate medicine, in the line of faith cures, practically criticises his own "surprise" method, by advising against all forms of illegitimate treatment as liable to do more harm than good.

In a discussion upon the subject of hysteria in childhood at the meeting of German naturalists and physicians in Brunswick,¹⁴ Werner was not disposed to lay the chief stress in causation of the trouble upon overwork in school and bad hygienic conditions, but upon defective conditions in the homes and improper management by the parents. Löwenthal had also noted that hysteria in childhood was more apt to be monosymptomatic. Insufficient sleep was often an important etiological factor. Böttiger regarded hysterical symptoms as always of psychical origin, and thought that pathological fatigue, which plays so great a part in neurasthenia, had nothing directly to do with hysteria.

Terrien¹⁵ reports eighteen cases in Vendée, where he thinks it particularly frequent: eight of these children were under four years of age. He considers it identical with the hysteria of adults, except that on account of the age it is often hard to determine some of the stigmata. He also thinks that it is not a purely psychical affection. It may simulate various organic diseases, especially meningitis; in one village he noted an epidemic of hysterical coxalgia, due to imitation. It may also be associated with other nervous affections. The diagnosis, on account of the difficulties in examining young children, is much more difficult than in adult life. The individual symptoms are probably less tenacious than in the adult, but they are so readily reproduced and other symptoms are so easily developed that he doubts if the prognosis be really any more favorable. An alcoholic heredity plays an important part, as well as a neurotic heredity; in Vendée six to eight litres of wine a day seems a very reasonable amount for one peasant. The prevalence of superstition has also a marked effect in that region. Isolation he found rarely practicable. Hypnotic suggestion gave him good results, but owing to the superstitions of the peasantry he was compelled to abandon it, and, since giving it up, the results of treatment have been less satisfactory.

TYPE-WRITERS' CRAMP.—The *Lancet* quotes a statement of the *Phonetic Journal* that a correspondent of the latter is suffering from this new form of "professional impotency" induced by a too assiduous use of the type-writer.

¹² Die Hysterie im Kindesalter, Alt's Sammlung zwangloser Abhandlungen aus dem Gebiete des Nerven- und Geisteskrankheiten, 1, 5, 6.

¹³ Neurologisches Centralblatt, October 15, 1897.

¹⁴ Loc cit., November 1, 1897.

¹⁵ Archives de Neurologie, October, November, 1897.

Reports of Societies.

BOSTON SOCIETY FOR MEDICAL IMPROVEMENT.

JAMES G. MUMFORD, M.D., SECRETARY.

REGULAR Meeting, Monday, December 27, 1897,
DR. A. L. MASON in the chair.

ANATOMICAL SPECIMENS.

DR. F. S. WATSON: As an anatomical specimen I would like to show this, which is the left lobe of an hypertrophied prostate which I removed yesterday by enucleation and which closely resembles a uterine fibroid. The patient from whom the specimen came was a man fifty-four years old, a physician who has had hematuria for about four years. The use of the catheter was necessary owing to the impossibility of emptying the bladder spontaneously. There was much bladder irritability. He was at one time acutely anemic from the repeated hemorrhages. I performed a suprapubic cystotomy and found large intravesical projections of the prostate on either side of the vesical orifice; of the two there were the upper portions of the enlarged lateral lobes; no hypertrophy of the median was present. On one part of the left lobe and the corresponding part of the neck of the bladder was an area of granulation tissue which was the source of the hemorrhages. The left lobe obstructed seriously the outflow of the urine and I removed it readily by enucleation. Shelling it out with the forefinger after splitting the mucous membrane and the capsule covering its intra-vesical portion.

DR. A. C. KLEBS, of Citronelle, Ala., by invitation, presented the subject of

THE DIAGNOSTIC AND THERAPEUTIC VALUE OF TUBERCULIN AND ITS DERIVATIVES.¹

DR. V. Y. BOWDITCH: I wish to echo the sentiments of the Chairman in extending the thanks of the Society to Dr. Klebs for his interesting paper. I only regret that one who has had a wider experience than myself with tuberculin was not selected to open the discussion, for my present views are largely the result of reading the arguments pro and con for the therapeutic and diagnostic use of the substance and not from personal knowledge.

It is more than distasteful to me to be or to seem in any way an obstacle to anything that marks true progress in medicine, and yet I find myself at present, regardless of the weight of argument in favor of the use of tuberculin, in a conservative, I fear in certain respects, in an ultra-conservative position. I hold myself, however, glad and willing to be convinced; but I am not yet convinced. A year hence I may feel differently.

In regard to the therapeutic use of the tuberculin I have more than once given my experience in a few cases at the Carney Hospital several years ago. After negative results, convinced of the dangerous character of the remedy in the doses then used and heeding the warnings of Virchow offered at that time, I gave it up, determined to wait until I should hear more from Koch before using it again.

With the "T. R." tuberculin used therapeutically I have as yet had no experience, because with the

dangerous elements which Dr. Klebs has mentioned, namely, the presence of living bacilli and other bacteria in some of the preparations, I should be unwilling to use it without a bacteriologist at my elbow to examine every specimen to insure against possible disaster. Under suitable conditions, however, I may use the substance in the near future therapeutically.

Now, as to the use of the old tuberculin as a means of diagnosis. I am fully aware of and greatly influenced by all that has been claimed and done in veterinary work, but as to its use for the above purpose in human beings I find myself still in what I have called already possibly an ultra-conservative position. I have never used it for this purpose. It has seemed to me that if there were any grounds sufficient to cause doubt as to the existence of tuberculosis it was better to give the patient the benefit of that doubt and urge measures suitable for its arrest without going to the extreme measure (as it seems to me now) of injecting tuberculin to get a possible reaction. I am confining myself now to cases of pulmonary tuberculosis. I can imagine cases of surgical tuberculosis in which a definite diagnosis is of supreme importance relative to the treatment, and in such cases I might deem the measure justifiable.

One argument against its use, and I believe it should be given due weight, is the fact that in cases where some acute non-tubercular process may be present we may be utterly misled by getting a reaction from the presence of an old latent tubercular process, which, as are known by hundreds of instances at the autopsy table, may have remained latent always and the existence of which may never have been suspected during life. For instance, supposing a patient is suffering from a simple acute bronchitis and at the same time is feeling run down from possible overwork or other cause. Suspecting tubercular trouble, we inject with tuberculin and obtain a reaction from the presence, as I have said before, of some latent nodule which has no connection with the present bronchitis. We instantly conclude that it is all of one and the same origin. It is easy to see what serious results might follow. Even granting that it is better to "err on the safe side" and tell a patient that the trouble is tubercular and make him act accordingly (although we have really made a mistake in diagnosis), we all know what such a diagnosis means to the mental condition of the patient, and how it would affect possibly his whole future action.

Again, I wish I felt as absolutely sure as those who advocate its use, that "it can do no possible harm in small doses," at the same time that it is granted that it can wake up a latent process which seems to subside when observing the temperature chart.

I have spoken of the different opinions I have read, and upon which I base my present position. Only this summer in the discussions at the Medical Congress in Moscow, Ziemssen has pronounced against it therapeutically and as a method of diagnosis. Certainly we know what his standing is; and only lately I have read correspondence from Berlin in which the evidence in favor of its use both diagnostically and therapeutically apparently is that it is on the wane. How much weight can be given to those statements I cannot say; it is simply that they influence me in my position now.

Such, Mr. Chairman, are the thoughts which occur to me and although, as I have said before, I dislike more than I can express to take the position of

¹ See page 121 of the Journal.

obstructionist to any true advance, I feel in duty bound to express my doubts.

It has seemed to me that the impression could easily be gained in the community by reading the medical journals that this method was virtually accepted by all of those whose work lies in this direction. That there are those who do *not* believe in the free use of the remedy I feel it only right to state; and I hope to hear a full discussion to-night.

In conclusion, I can only express what I did in addressing the Boylston Medical Society the other night. The diagnostic use of tuberculin is something which, feeling as I do at present, I should not wish tried upon myself or upon a member of my family; and I question how far I am justified in using it therefore on others. I repeat, however, that I am willing and glad to be convinced of my error if it be so; and in the future it is quite possible I may be using the substance freely.

DR. E. O. OTIS: I wish to express my gratification at the exceedingly interesting and exhaustive paper Dr. Klebs has given us.

In regard to tuberculin as a diagnostic test, the best results, as a rule, are obtained in the treatment of pulmonary tuberculosis the earlier this treatment is begun; hence the desirability of an early diagnosis and the value of any means that will assist in this, provided it is not accompanied with injurious effects. Sufficient evidence has been adduced to show that tuberculin is of value as a means of diagnosis when others fail. Koch, the discoverer of the bacillus and tuberculin, has used this test in 5,000 cases in which physical signs were absent and bacilli could not be discovered in the sputum, with "most reliable and satisfactory results";² and in his latest communication³ says that used in more than 1,000 cases for an early diagnosis of tuberculosis, in not a single case could the slightest indication of an unfettering and transplanting of tubercle bacilli be observed. Maragliano, Gaffie, Von Jaksh, Krause, Ruedi, Straus, Grasset and Wedel, Springthorpe and many others in Europe; Trudeau, Whittaker, Von Ruck, White, Sears, Douglas Head and others in this country, have found it of value in diagnosis. Springthorpe⁴ says by its use one can differentiate pleurisy, tubercular adenitis and lymphadenomata, strumous and rheumatoid affections, tubercular and malignant ulcerations of the larynx. It has been found also of value in surgical diagnosis.⁵

Sears and Netter obtained valuable results with it in cases of acute pleurisy. There are, however, in the opinion of many observers certain risks connected with its use. Fränkel, Von Leyden, Naumyn, Schultzer, Kast, Dettweiler, Virchow, Houseman and Ziegler are united in this opinion if the patient has tuberculosis. No one has found it harmful to non-tuberculous persons. Further, it does not seem to have been definitely settled how much to inject and what is the reaction.

Mouton⁶ formulates four questions to be answered:

- (1) The dose for a reliable test?
- (2) What rise of temperature should be considered a reaction?
- (3) Is it possible for non-tuberculous persons to react, and tuberculous not?
- (4) Is there danger in its use?

² Editorial, Medical News, March 6, 1897.

³ Ueber neue Tuberkulinpräparate, 1897.

⁴ Glasgow Medical Journal, 1896, p. 341.

⁵ Sandberg: British Medical Journal, 1896, p. 1106.

⁶ Munchen. med. Woch., 1897, xlv, s. 579.

As to the dose, the majority of observers have found from one-half to ten milligrammes to be sufficient for a test, and generally without harm. Maragliano used one, three, and ten milligrammes; Mouton, one to ten, generally only to five; Grasset and Wedel, from two-tenths to five-tenths of a milligramme; Springthorpe, five milligrammes; Straus, ten milligrammes; Koch, one and a half to ten milligrammes; Gaffie, in infants, one-twentieth of one milligramme; Sears, one to five milligrammes, generally one; White, ten milligrammes; Whittaker, five, ten and twenty; and Trudeau, one-half, one and two milligrammes.

As to the second question, What rise of temperature should be regarded as a reaction? Starting with a normal temperature, a sharp rise to 102.5° to 104° or over, accompanied with cephalalgia, articular pain, and anorexia, occurring within twenty-four to forty-eight hours, appears to be the reaction which is considered as definite, although there still exists a difference of opinion regarding this question. Trudeau looks for a temperature of 102.5° to 104.2°; Whittaker, 103°. Mouton thinks that non-tuberculous persons do sometimes react and tuberculous not; but can we say that they are non-tuberculous if they react? And yet one can readily believe that a small encapsulated tubercular focus, in a bronchial gland for example, might not give any reaction. On the other hand, we know that well-marked or advanced cases of phthisis sometimes do not react, especially with small doses of tuberculin; but here the conditions are different, for the infection then is generally a mixed one. Coghill,⁷ however, says that in proportion to the extent and activity of the tuberculous lesion, the greater and more prolonged is the reaction to the same doses of tuberculin, hence the more advanced and active the pulmonary lesion the greater the necessity for proportionally smaller doses and longer intervals in its administration; this would apply rather to the use of tuberculin as a therapeutic means than as a diagnostic test.

The last question, as to the *danger* connected with this diagnostic use of tuberculin, is the most important one for us to decide, and the most difficult. It is one, moreover, upon which opinions differ widely. If the cause of the reaction is an acute inflammation where the tubercle bacilli are at work, then the fear that the bacilli may be rendered mobile and tuberculosis from latent sources to be awakened and the disease disseminated, aggravating already existing symptoms, is not altogether an idle one; and it is this fear which has and does deter the majority of clinicians from this use of tuberculin. Used in the cautious way in which Trudeau, for instance, used it in doses of from one-half to two milligrammes, there seems to be no sufficient evidence to show that such fears have been realized. Whittaker has used it in a large number of cases for the last five or six years, and has seen no evil results from it; many other observers have had the same experience.

The use of the tuberculin test in suspected tuberculosis in other portions of the body than the lungs seems to me to be perhaps even more valuable than in suspected pulmonary tuberculosis.

Another difficulty and perhaps danger in the test is a certain amount of uncertainty in the quality and strength of the tuberculin used; but this can be obviated by using only that made in a known laboratory and first tested on animals. Trudeau, I believe, makes his own tuberculin in his own laboratory.

⁷ Lancet, 1896, p. 1219.

Tuberculin has also been found to give more or less of a reaction in other diseases, such as syphilis, malignant affections, lepra, actinomycosis; but this seems to be an exceptional result and practically can be disregarded.

In the therapeutic use of tuberculin, while the majority who were, at its discovery, enthusiastic in its possibilities, have abandoned its use in disgust, a minority have patiently worked on with it, and with suitable cases in small doses have obtained encouraging results. Such men are Kaatzer, Spengler, Thorner, Coghill, Springthorpe, Von Ruck, Whittaker, Quimby, Trudeau and many others. The unfortunate and disappointing results at first obtained were undoubtedly due to its use in unsuitable cases—such as mixed infection with hectic fever; when the lesions are general, as in acute miliary tuberculosis or when they have assumed a rapid evolution; cachexia; amyloid degeneration; hemorrhage—and also to too large doses. The dangers seem to depend upon either a general intoxication or too intense local reaction. The only proper cases for its use are now understood to be pure localized tuberculosis with little or no fever—the incipient cases. Its action, according to Koch, is in producing an inflammatory irritation of the tissues about the tubercle, whereby death of the bacilli is effected. It is not now believed that its chief curative effect depends, as Koch originally maintained, upon necrosis. When one considers that Koch's original beginning dose was one milligramme or more, and that it has rapidly increased to 100, or even more milligrammes, and that this maximum dose was reached in a month or six weeks, and further that the remedy was used in these heroic doses in all sorts of cases, it is little wonder that such dire results followed. Koch now advises a beginning dose of his new T. R. tuberculin of one-five-hundredth of a milligramme, and the maximum dose twenty milligrammes.

Those experimenters who have continued the use of tuberculin and have obtained definite and favorable results from it, all begin with small doses, generally one-twentieth of a milligramme, and gradually and slowly increase. For example, Thorner begins in all cases with one-twentieth of a milligramme, followed by an increase of one-twentieth every other day until half a milligramme was reached. The increase was then made, one-tenth of a milligramme at a time at similar intervals, until one milligramme was reached. At this point, patients who showed fever were excluded from treatment. In other cases the injections were made twice a week, the increase being one-fifth of a milligramme until two milligrammes were reached, when an increase of half a milligramme was made until five milligrammes were given; the increase was then steadily advanced according to the condition of the patient, not giving higher than fifty milligrammes. Occasionally pauses for a few weeks were made, and then the treatment resumed, beginning with one milligramme and increasing as before but more rapidly. Used in this way, with properly selected cases, the results have at least been sufficiently encouraging to warrant further and continued trial.

As Kaatzer says, it is a harmless and useful remedial agent, and its curative properties are lasting. Whittaker still more emphatically says that tuberculin remains as yet the only radical address, and that the estimate of its value will increase, and its best results will be obtained in the decades of the new century; and he

adds that in the dose of one-twentieth of a milligramme it is entirely free from danger.

It is interesting to note the results of animal experimentation with tuberculin, as made by Koch, Kitasato, Pfuhl, Trudeau and others. Koch, in his latest communication, says that he has succeeded in immunizing so completely a large number of guinea-pigs that they withstood repeated injections of virulent cultures without becoming infected: and in those guinea-pigs which after tuberculous injection received injections of T. R., without exception regressive changes were found in all organs that were already tuberculous when the treatment commenced.

It has been noted by Hance, Loomis and others that those who improve under the use of tuberculin are not so liable to relapse as those who improve under the ordinary hygienic treatment.

In view of the experience and results of the many careful and trustworthy phthisic-therapists who have from the first and still continue to use tuberculin to their own satisfaction, those who oppose its use, possibly with some prejudice, may pertinently ask themselves this question of Trudeau's: "Are we in the future to cast these bacterial products aside and rely entirely on a favorable environment, and our efforts to be directed solely to improving nutrition, as in the past, or may we yet hope that with an enlarged knowledge of these complex products and their effects, a substance may yet be produced free from danger to the patient, and capable of staying to a greater or less degree the ravages of a disease against which our best directed efforts are at present too often of no avail."

Akin to this subject it may be of interest to state that through the kindness of Professor Ernst who procured the serum for me, and with the assistance of Dr. W. H. Smith, I am now experimenting with the anti-streptococcus serum in advanced cases of phthisis where the infection is a mixed one and the streptococcus exists. If it should become possible by this means to reduce the infection to a simple bacillary one, then it would seem that tuberculin could be used in these cases also, as suggested by Dr. Smith, with a prospect of favorable results.

DR. A. WORCESTER: I have had some experience the last few years with the use of tuberculin and its modifications as a diagnostic agent and also as a therapeutic agent. I want, with all deference and respect for Dr. Bowditch, to protest against his arraignment of tuberculin as a diagnostic test because it might let in the light. I cannot think that is sound. Even if that latent nodule of which he has spoken might possibly remain latent and unknown throughout the life of that patient, he certainly will admit there are equal chances it would not remain innocuous. For myself, or for the body of any one dear to me, I hope I may never be unwilling to know so far as science can tell me what the pathological condition really is. If the use of tuberculin as a diagnostic test shall be proved to be injurious, I am willing to abide by that proof and am willing to give it up if its injurious effects shall seem in any way equal to the positive advantages that come from the certainty that it gives us. But I have not seen any harm from it. I have seen immense benefit from its use, in that it has relieved anxious families who feared that there was latent tuberculosis in their loved ones. We cannot, gentlemen, overestimate the advantage of such a negative; and how

• Transactions of the American Climatological Association, 1892.

else can it be obtained? Dr. Klebs referred to its use in distinguishing the latent tuberculosis or incipient tuberculosis in persons supposed to be suffering from chlorosis. I have had such patients. I was unable to make the diagnosis of tuberculosis otherwise, nor was I able to relieve them except temporarily. Tonics and change of air would give a little help, but down they would drop again. On applying this test and discovering tuberculosis I could then treat these patients properly.

I disagree with the reader in thinking that tuberculin is of much more value as a diagnostic than as a therapeutic agent. I have no knowledge of what other men have done beyond the little I have seen with my own eyes. As I have several times reported to my colleagues and friends in this State, I became convinced when in the wards of the Charité that tuberculous patients were being cured there. There was a very noticeable difference in the patients there from those I had the opportunity of seeing in other hospitals devoted to the treatment of tuberculosis. I consider it the greatest fortune of my life that I had the chance of studying the cases there and the administration of tuberculin. On my return two and a half years ago I determined to take hold of tuberculous patients in earnest and begin what might be an imitation of the work done in the wards by Brieger. I thus date my own encouragement and peace of mind in the thought of this disease. Of course, any man is liable to overestimate the good of his work; but I ask you, gentlemen, if in your treatment of tuberculosis you have any reason to overestimate what advantage your treatment may have effected. Is there not, as regards tuberculosis, a wellnigh universal pessimism in the profession, and is it not rather rare that a man is glad to meet tuberculous patients and perfectly confident of his ability to do something for them? I have had but few cases of incipient tuberculosis. Most of the patients that have fallen into my hands, who have been willing to be treated by tuberculin or its modifications, have been cases of advanced tuberculosis referred to me by physicians after they were unwilling to do anything for them. I have seen remarkable results in cases of tuberculosis supposedly so advanced that there was little encouragement. Some of the gentlemen here present were kind enough, one year ago and two years ago, to examine some of these patients, and to give a prognosis to the effect that there was no possible chance for their recovery. Some of these patients have died, but some who were then sick in bed have since been discharged from the hospital and are doing their own work, earning their own living, perhaps taking care of their own children.

As regards the danger from administration of small amounts of tuberculin, I can show patients to whom I have given nearly 100 grammes of tuberculin; and if there is danger in one milligramme there ought to be some ill effect in a patient who has had 100 grammes injected hypodermically. As it is plain to me that it is of diagnostic value, so it is equally plain that it is of great value as a therapeutic agent. These are my reasons: I find it possible to immunize a patient with tuberculin; a patient who at first reacts to a milligramme can be immunized so as to receive one or two decigrammes daily without reaction; and I have not in a single instance where that immunity has been obtained failed to see a corresponding gain in the physical signs and the general condition of the patient.

In the cases of advanced tuberculosis of course it is not possible to immunize, not possible to give tuberculin except in those cases where the fever runs low. I do not give tuberculin where the temperature rises above 100°. Where the temperature is higher I have given the modified tuberculin, and after varying periods of time I have found such patients immunized to tuberculin itself. I feel much indebted to Dr. Klebs and his father for having during the last two or three years kindly on many different occasions devoted hours and even days to the study of my patients and for giving me most helpful advice concerning them.

DR. H. F. HEWES: In July and August of this year I treated four cases of pulmonary tuberculosis with Koch's new tuberculin, T. R. A full description of these cases and of the immediate action of the tuberculin was given in the *Boston Medical and Surgical Journal*, September 9th. The period of something over four months which has now intervened since the completion of treatment has proved a sufficient interval for passing a judgment on the efficacy of the tuberculin treatment in these cases. The treatment was given according to the method advised by Koch, the dose being doubled every second day up to 20 milligrammes.

The first case was a woman, twenty-three years of age; duration of symptoms eight months. She had been under my treatment two months before receiving tuberculin, and had been improving somewhat. The physical examinations showed areas of consolidation at the apices of both lungs; bacilli in the sputum in large numbers. The evening temperature averaged between 99° and 99.5° F. The patient took the treatment without showing any untoward reaction and felt much better during and at the end of treatment than she had felt formerly. She, however, lost seven pounds in weight during the treatment, and the physical signs were unchanged. Bacilli still present in the sputum. One month later, the condition being somewhat improved, she was given a single dose, 20 milligrammes. No reaction followed and the patient continued to improve somewhat in strength and general condition. At present, something over four months after the treatment, her condition holds its own. The cough is still troublesome and physical signs are absolutely unchanged, the bacilli quite as numerous in the sputum as before treatment. She had regained her weight and about four pounds more.

The second case was a man whose symptoms dated back something over two years. He had been very ill just before treatment, but had begun to improve. It was not a suitable case for treatment with tuberculin, T. R.; but as the patient was very earnest for the treatment, it was given him. The physical signs showed consolidation and cavity formation in the upper two-thirds of the left lung, much emaciation, tubercular ulceration of the left ventricular band of the larynx. Temperature 99.5°. Bacilli present. The patient received the tuberculin up to 30 milligrammes. After the first week of treatment he had much lassitude and weakness, and seemed much worse than before. At the end of treatment he was decidedly worse, and continued to fail for the next month. He lost twenty pounds and at the end of the month was obliged to take to his bed. One month later he died.

The third case was a colored woman. Symptoms dated back three years. Temperature 98.5°. Bacilli

present. This patient had improved under the dietetic treatment for the nine months previous to tuberculin treatment. The treatment was interrupted by two distinct reactions consisting of a chill and rise of temperature and other symptoms of malaise. The patient felt much worse during treatment than formerly, and at the end of treatment she felt and was a wreck. During the month after treatment she failed steadily, and I feared that she was going to die. Since that time, however, she has begun to improve, and for the last two weeks she says that she has felt about as well as before treatment. Signs unchanged. Bacilli present.

In the fourth case the symptoms dated nine months. Consolidation at left apex. Temperature 99°. The case improved considerably under treatment. She felt better and went back to work. One month after completion of treatment she had a large hemorrhage with pain over the left side over the area of consolidation. Since the hemorrhage she has been much better and gained eighteen pounds. Signs of consolidation still present and bacilli still numerous.

This is a very brief survey of the cases, but enough I think to enable one to draw some conclusions as to the results of the treatment in these four cases. In none of the cases is there any evidence of eradication of the diseased condition. In two of the cases there were some signs which might suggest that harm was done by the treatment. The second case certainly had a tremendous loss in condition. He probably would not have lived through the winter, I think, under any circumstances; but the treatment certainly added to the discomforts of dissolution, if it did not hasten that process. In the third case there was much temporary loss, but the patient has now regained the condition present before treatment. The fourth case seemed improved, but there was pulmonary hemorrhage one month after treatment.

These results are no argument against the use of tuberculin in incipient cases. These cases are not of the type which Koch recommends for treatment, and had not the benefit of hospital care during treatment. In their character and condition, however, they do represent the type of case which is most common in our hospital work, a type for which we much need a remedy. I think the results in these cases would not encourage us to seek that remedy in tuberculin T. R.

DR. F. I. KNIGHT: When requested by the Secretary to say something on this paper I declined to take part in the discussion, because I felt I had not sufficient personal experience; and for that reason I do not wish to say anything now, but I would beg gentlemen who are going to report on this subject to give us more definite facts and not general impressions. If Dr. Worcester the next time he comes in would bring such a record as Dr. Hewes, for instance, it would be very much more satisfactory; not that I doubt his judgment, but we want exact details of cases.

DR. MASON: I think at the City Hospital there has been no great conservatism about the use of tuberculin for diagnostic purposes. Little use has been made of it therapeutically for various reasons. Many of the patients come too late to be suitable subjects for this method of treatment. I mean to say since the first year in which Koch's tuberculin made its appearance, when many cases were treated, early and late, with some disastrous results, as we all remember; but for diagnostic purposes we have found it useful. I have brought three charts out of a considerable number as

showing the reaction in non-febrile cases. In one the temperature was below the normal, the very striking reaction, 6° F., occurring after what, perhaps, might be considered by some of the speakers a large dose, that is, five milligrammes. Smaller doses I found were not efficacious always for a positive diagnostic reaction, so that I resorted to five milligrammes as the first dose, and usually with satisfactory results.

The first case was that of a young girl with supposed tubercular peritonitis with little or no fever, pain in the abdomen, very slight effusion, if any, and doubtful diagnosis. The tuberculin test gave such a positive reaction that she was operated on at once by laparotomy and eventually left the hospital greatly improved. I have not heard from her since.

Another case was one of tubercular pericarditis in the service of Dr. Williams, a man in whom the reaction was almost dangerous from the severity of the symptoms. He died subsequently from pulmonary tuberculosis.

The third case illustrates one of the points referred to by Dr. Klebs, the striking reaction that occurs in the syphilitic. A girl with abdominal effusion, doubtful diagnosis, thought to be probably cirrhosis of the liver, although she was not addicted to the bottle, presented this very marked reaction from tuberculin; and the abdomen was opened. There was no tuberculosis of the peritoneum. Iodide of potassium was freely given, but she died about a year after; autopsy showed syphilitic induration of the liver, with gummata. Probably that explains the reaction.

These are a few out of quite a number of cases that have been treated at the City Hospital by Drs. Williams, Sears, Jackson, and, I think, most of the physicians. It appears to me that there is no dread of this material as a diagnostic agent if given in suitable cases.

DR. E. O. OTIS: I should like to ask Dr. Hewes if in his four cases he found the streptococcus in the sputum; and I should also like to ask Dr. Klebs and Dr. Worcester if they use tuberculin in mixed infection in which both the bacillus of tuberculosis and the streptococcus are found in the sputum.

DR. HEWES: I found streptococci in marked numbers in none of my cases, and there was no evidence of mixed infection that I could make out. Two cases showed no pyrexia at any time, and the other two showed as the highest temperature before treatment 99.5°. The bacillus of tuberculosis was practically the only organism I found in any numbers in the sputum. In my experience of the use of tuberculin for diagnosis in 18 cases, I have seen no results which would prevent me from using it for this purpose.

DR. H. F. VICKERY: About the dose to inject for diagnostic purposes, I have heard the objection made to a small dose, that if that fails and after some days you give a larger dose, you give it to a patient who has got used to the medicine; so that there is a certain advantage claimed from giving a pretty fair-sized dose the first time you give any. I should like to ask Dr. Klebs when he closes the discussion to speak on that point, whether that objection is of any account. About the giving of tuberculin for a test I had *a priori* exactly the unfavorable opinion Dr. Bowditch had; but I have yielded to the overwhelming evidence of the harmlessness of the procedure. I have personally seen a good many cases injected with tuberculin without ill effect.

DR. KLEBS: In reply to Dr. Otis's question whether I use tuberculin in cases of mixed infection I wish to answer in the positive in cases of double diagnosis, in general we must admit that we know very little about this mixed infection. When we do not make cultures of the streptococcus we do not know whether it is a virulent type or not, the simple presence of streptococci in the sputum allows no conclusion. In typical cases of mixed infection I think there cannot be great advantage from the use of tuberculin.

In answer to Dr. Vickery's question, the objection he mentions is a real one; and therefore I mentioned in this paper that when we gave a test injection we begin with a small dose and wait four or five days to overcome the immunization produced by this dose and then we get just the reaction as before.

I quite agree with Dr. Bowditch as to his conservatism and I think we have to be conservative; but I do not wish to understand by conservatism not to try a remedy at all. I think we have to go very cautiously forward in the use of a preparation we know can be of danger, but as we have ways to avoid it, our conservatism must not hamper legitimate progress.

As to whether the test is absolutely certain in cases of tuberculosis. I have said it cannot be an absolute test; but taking into account the two possibilities, syphilis and lepra and its limitations in general, we can draw conclusions very easily.

As to the dangers of the preparation, Dr. Otis said that Virchow, Houseman, Ziegler and others are of the opinion that there are risks connected with the use of tuberculin. It should be borne in mind, however, that these men are pathologists, and drew attention to certain risks at a time when the large doses were in use. We have yet to hear of similar results in recent times. After repeated injections there may be a danger. As mentioned, I have noted albumin in the urine after repeated injections.

As to the streptococcus serum, I have tried it in a few cases, from the theoretical point of view that, if we have mixed infection, especially pronounced hectic, it would be very agreeable to overcome it. I have not found any advantage from its use.

I believe that the general practitioner is a much better judge of any remedy in tuberculosis than we who do work in institutions.

Dr. Worcester spoke of immunization to tuberculin. Now if you immunize a patient to tuberculin, you put him in a somewhat artificial condition in which he does not react to tuberculin for some time, but tuberculin immunity does not mean cure and after a certain time you get again the reaction to tuberculin and then we have to begin again.

As to the Charité in Berlin, that is an admirable institution, and I would not say anything against the work which Brieger has done there, but I think it is not the ideal way of disposing of the tubercular poor. I don't think it is very hygienic. Then, too, those cases cannot be followed, and many of them go out and die later somewhere in the east of Berlin, being previously reported cured or improved.

THE PRACTICE OF MEDICINE IN ARIZONA. — In March, 1897, Arizona passed a law stipulating that all applicants for licenses to practise medicine in that Territory must not only possess a degree from a reputable medical school, but must also pass an examination before the Territorial Board of Medical Examiners,

THE MASSACHUSETTS MEDICAL SOCIETY.

COUNCILLORS' MEETING.

A STATED meeting was held at the Medical Library, Boston, on Wednesday, February 2, 1898.

The meeting was called to order at eleven A.M. by the President, DR. HENRY P. WALCOTT. Fifty-eight Councillors were present.

APPOINTMENT OF DELEGATES AND COMMITTEES.

On nomination by the Chair, the following delegates to other State medical societies were appointed:

Maine: Drs. E. N. Whittier, of Boston; J. A. Fitz-Hugh, of Amesbury.

New Hampshire: Drs. H. E. Marion, of Brighton; J. A. Gage, of Lowell.

Rhode Island: Drs. J. M. Harlow, of Woburn; A. H. Cowdrey, of Stoneham.

Connecticut: Drs. J. C. Hubbard, of Holyoke; A. Post, of Boston.

New Jersey: Drs. E. B. Harvey, of Westboro; J. A. Houston, of Northampton.

Committees were appointed:

To Audit the Treasurer's Accounts: Drs. F. I. Knight, F. G. Morrill.

A communication from the Chicago Medical Society was read soliciting the members of the Society as follows:

You are urgently requested to write a short personal letter to, *or to wire*, your own senators and representative in Washington, or any other congressman you may have influence with, protesting against the passage of Senate Bill 1063, known as the Antivivisection Bill. Senator Gallinger is chairman of the committee having the bill in charge, and has given notice that he will call for a vote on the bill at an early date. Hence you should send your protest without delay. It is believed that thousands of such messages pouring into Washington within the next ten days will enable those on the ground in charge of the opposition to the bill to defeat it.

The Society by vote, and by communications to the members of Congress from this State, has already entered its protest against the passage of the bill in question.

A portrait of the late Dr. Cotting was presented by his family to the Society.

DR. DRAPER offered the following:

Resolved: That the gift of the portrait of Dr. Benjamin E. Cotting be accepted, and that the thanks of the Society be sent to the donors for their thoughtful and liberal act.

DR. CHEEVER, in seconding the motion, said that Dr. Cotting might be regarded as the father of the Society for the latter half of this century. Advocating its rights and duties, he held up a very high standard of medical morals.

The resolution was unanimously adopted.

MOTOR-CRADLES. — The latest addition to the scientific armamentarium of the nursery, according to the *Medical Press and Circular*, comes in the guise of a motor-cradle. Furnished with this labor-saving contrivance the nursemaid of the future may economize time and temper to the behoof of her charges. The question whether babies should be rocked at all, either by hand labor or by machinery, is quite another thing. Perhaps some scientist will kindly investigate the philosophy of the effects of rhythmical motion upon babes.

THE BOSTON
Medical and Surgical Journal.
 THURSDAY, FEBRUARY 10, 1898.

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THE CAFFERY BILL.

THE Senate Committee on Public Health and Quarantine at Washington has submitted to that body, through Senator Vest of the committee, a report upon the various plans which have been referred to it for the creation of a Department of Public Health.

As might have been anticipated from the constitution of that committee, the report is wholly in the interests of the Marine-Hospital Service, which, with the powerful support of the Treasury Department, has better facilities for persuading congressmen than can be enjoyed by any interest or interests distant from Washington.

The Marine-Hospital Service was established in the Treasury Department for the sole purpose of caring for the sick sailors of the merchant marine. Such hospitals were once necessary because general hospitals were few and hardly sufficient for the needs of the permanent population in their vicinity; but the seaport cities have now hospital accommodations large enough to receive the ordinary sailors, while those attached to the navy would naturally be still cared for in the hospitals of that service. Under a succession of energetic chiefs the Marine Hospital has acquired functions foreign to its organization, and now demands the oversight of the public health work of the nation, a function not justified by anything in its constitution or experience.

If any existing department in Washington could properly be placed in charge of our quarantine work, the navy would seem to be the proper body, for its medical officers have visited all quarters of the globe, and are more familiar than any other public servants with the foreign diseases which produce so much disturbance when introduced into this country.

The great sanitary need of the country, however, is something of far greater importance than a quarantine against yellow fever or cholera. The disgraceful deficiency of the government at Washington in this regard lies largely in the fact that a few cities and less

that five States have done the only creditable public health work of the country in later years. It has been the hope of many that the growing belief in really scientific methods for the prevention of disease might find some encouragement in the halls of Congress; but it now seems probable that the same Senate is willing to hamper the methods of investigation which have given us a means for controlling diphtheria, and to enlarge the powers of the Marine-Hospital Service for the sole purpose of creating a quarantine against yellow fever and cholera alone.

The larger part of Senator Vest's report, which accompanies Senate Bill No. 2680, is devoted to the discussion of the constitutional right of the United States to protect its inhabitants against a contagious disease introduced into this country from abroad; and, fortunately, the conclusion is reached that the general government has that right, but it hardly seems necessary at this late day to spend much time upon the question of a right to save human life when Congress has more than once authorized more drastic measures for the suppression of diseases among the domestic animals than any now demanded for man's protection.

So long as the Senate regards its associate from New Hampshire, Dr. Gallinger, as a sufficient representative of the present views on preventive medicine, we are not likely to get any better plan for a public-health service than this presented by Senator Vest; but if any of our readers are in a position to do missionary work in instructing any senator in the beneficent functions of the great sanitary boards of other countries, let such hasten to the task.

THE RELATION BETWEEN THE NOSE AND THE SEXUAL APPARATUS.

MARK TWAIN, as a result of his critical study of the German language, came to the conclusion that as so many of the nouns were made by adding a prefix or an affix to either *Zug* or *Schlag*, it would simplify the language if all other nouns were suppressed. In the same way we find in medicine the peripheral irritation of so many reflex nervous phenomena can be traced either to the generative apparatus or to the nose that it is folly to subject our patients to annoyance by seeking further for a cause, at least until these two regions have been thoroughly explored.

The influence of the sexual organs upon the rest of the body has always been recognized. Some years ago one of our medical sages was in the habit of calling the attention of his students to the influence of sexual excitement on the deltoid muscle, as seen, for instance, in the barn-yard cock, the frog, the stallion and other lower animals, and even in the young men in the lower classes in our cities.

The influence of the nose is being more and more appreciated each year. Abnormal nasal cavities not only cause serious pathological symptoms, but they deprive the owner of his just share of the enjoyments of life.

"Wer liebt nicht Wein, Weib und Gesang,
Der bleibt ein Narr sein Leben lang."

The poor fellow was probably simply suffering from nasal obstruction. Physiologists¹ have long known that the flavor of wine, or any other taste except a half-dozen of the crudest, is due to the nerves of smell and not to those in the mouth. More recently we have learned that all the finer qualities of the singing voice are possible only when the nose and accessory cavities are in proper condition and properly used. Can we be surprised, then, at evidence which seems to show that the third is equally dependent upon the same organ?

A relationship between the nose and the reproductive organs is very evident in the lower animals, although in man the sense of smell as a sexual guide has been largely replaced by the other senses. But we find that there is an increasing number of cases reported in medical and general literature to show that it is by no means entirely replaced. There is no question that many ideas, even chaste ideas, may be aroused by the sense of smell. Many authors have unconsciously or otherwise used the influence of smell upon sexual impulses in their romances. In Zola's realistic pages the reflex value of odors is frequently made prominent.

Is it not to be expected that these two sources of delicate nervous impulse, the nose and the genitals, each of which influences the body so profoundly, should influence each other in many subtle ways?

A thorough and scholarly article on different aspects of the subject by J. N. Mackenzie¹ has recently appeared. Dr. Mackenzie appreciates the interest and importance of the subject, and concludes thus: "The study of the relations between the nose and the sexual apparatus opens up a new field of research, of pleasing landscape and almost boundless horizon, which bids to its exploration not only the physiologist and pathologist, but also the biologist. Above all it brings us face to face with a serious problem of life, an interesting enigma, whose significance it will be the task of the future to divine." The thoroughness with which the author has studied the subject may be inferred from the following quotation: "Sneezing is sufficiently common, particularly during coitus. Quite a number of such cases have come under my personal observation in persons of robust health and whose nasal organs were apparently free from disease." He shows that the subject is not new. He quotes from several ancient Greek and Latin authors to show that it was commonly thought that a man's sexual powers depended upon the size of his nose, and that a woman's virginity could be proved by her throat, and similar observations of the wise men of old. It had also been noted that catarrhal symptoms are often caused by sexual excitement, and it is this part of the subject, in connection with the local changes which take place in the nose during different states of the genital organs, coitus, menstruation, pregnancy, etc., which form the principal part of the paper.

¹ Johns Hopkins Hospital Bulletin, January, 1898.

The author covers both the physiological and pathological sides of the question with a thoroughness which makes his paper a valuable addition to the literature of the whole subject. The paper shows incidentally that co-education in our best medical colleges does not, as was claimed by some of its opponents, tend to limit free discussion of subjects which to the non-medical mind might seem likely to cause embarrassment to a bisexual assemblage.

A recent monograph by Fliess² approaches the subject from the other direction. He finds certain sensitive spots in the nose which seem to him the origin of genital troubles, and he reports cases in which he has relieved dysmenorrhea by cocaineizing and cauterizing these spots. If his observations are confirmed, we may be able in the future to do away with one of our two common sources of peripheral irritation and treat all of our patients through the nose. And if we can also recover the lost art of the ancients, and add to our requirements the diagnosis of the sexual condition of those we meet by the size and shape of the nose and mouth and neck we shall add greatly to the chastity of the race; for who would dare to transgress if his transgression were to be written on his face?

THE BILL TO RESTRAIN THE NEW YORK CITY BOARD OF HEALTH.

THERE is much opposition to the bill introduced into the Legislature by Senator Brush curtailing the powers of the New York City Board of Health, and Mr. Strauss, the President of the Board, has had statistics prepared showing the value of the work which it is proposed to interfere with. The manufacture of vaccine virus for the Department was begun in 1876. From 1868 to 1877 there was a total of 1,466 deaths from small-pox in the city. In the decade following there were 936 deaths from the disease, and in the decade ending last year there were but 458 deaths from it. The manufacture and sale of diphtheria antitoxin by the Department was authorized in 1895. In 1895, 1896 and 1897 there were 2,450 diphtheria patients treated with antitoxin, of whom 2,087 recovered, and 363 died. In 1894 there were 2,870 deaths from diphtheria, but in 1897, with antitoxin in more or less general use, there were only 1,591 deaths from the disease. Mr. Strauss also points out that there is no other city in the State where either vaccine virus or antitoxin is produced in large enough quantities to supply New York's demand.

At a meeting of the Medical Board of the New York Hospital, held January 31st, resolutions were adopted commending the results achieved by the Health Board in the distribution and use of preventive remedies and condemning the Brush bill. Dr. E. L. Trudeau, the distinguished authority on tuberculosis, who himself narrowly escaped death from the disease, and who has for many years been the superintendent of a sanitarium at Saranac Lake, where the results

² Berlin, 1897.

have been most gratifying, has sent a communication to President Strauss in which he expresses the opinion that the passage of the bill, which, it will be remembered, takes tuberculosis out of the list of infectious diseases, would be a grave menace to the cause of progressive sanitation and to the welfare of the community. It should also be mentioned that Dr. Abram Jacobi has withdrawn from the Committee of the County Medical Society, which was instrumental in the framing and introduction of the bill.

MEDICAL NOTES.

DR. WELCH APPOINTED TO THE MARYLAND STATE BOARD OF HEALTH — Dr. William H. Welch, of Johns Hopkins Hospital, has been appointed by the Governor of Maryland a member of the State Board of Health, and has accepted the position.

SMALL-POX IN THE SOUTH. — At Atlanta, Ga., only 12 new cases of small-pox were reported there during the week ending January 29th. In Alabama the disease is on the increase, and 175 cases were reported to the Board of Health during that period of time.

ALLEGED ORIGIN OF YELLOW FEVER EPIDEMIC. — The committee of the Mississippi Legislature appointed to investigate the yellow fever of last summer has reported that the yellow fever originated at Ocean Springs, Miss., beyond all question, but not from the United States Marine-Hospital quarantine station at Ship Island. According to the results of investigation the yellow fever got into this country much earlier than supposed, as early, indeed, as the latter part of April, and not from Cuba but from Guatemala. It is thought to have been introduced by a family, residents of Mississippi, who had been temporarily staying in Guatemala, and who came to the United States on the Central American steamer *Breakwater*. Their baggage was not fumigated or disinfected. They went direct to Ocean Springs, where one of them was taken sick with fever. Within a few days fever started in their immediate neighborhood, and from that time fever of some character prevailed in Ocean Springs all the summer, although the diagnosis of yellow fever was not made until September. The committee attributes the introduction of the yellow fever to the fact that the quarantines of the Gulf States against the West Indies and Central America go into effect on May 1st, whereas the *Breakwater* brought the disease into the country in April, or before the quarantine service was put in operation.

BOSTON AND NEW ENGLAND.

ACUTE INFECTIOUS DISEASES IN BOSTON. — For the two weeks ending at noon, February 9, 1898, there were reported to the Board of Health, of Boston, the following numbers of cases of acute infectious disease: diphtheria 84, scarlet fever 32, measles 41, typhoid fever 9.

PHILADELPHIA PHYSICIANS VISIT THE BOSTON CITY HOSPITAL. — Dr. A. C. Abbott, director of the City Bacteriological Laboratory of Philadelphia, Dr. Woodward of the Board of Health, Dr. W. M. Welch, physician in charge of the Municipal Hospital, and other city officials have recently made a visit of inspection to the Boston City Hospital with a view of studying the new surgical and laboratory buildings with reference to the construction of the new wings to be added to the Municipal Hospital of Philadelphia. The construction and equipment of these buildings are among the best in the country.

ANNUAL DINNER OF THE BOSTON CITY HOSPITAL CLUB. — The Boston City Hospital Club had its annual dinner at Young's Hotel on Wednesday evening, February 2d. One hundred and ten members were present. The President, Dr. Geo. W. Gay, presided very felicitously. Speeches were made by Messrs. L. G. Burnham, a trustee of the hospital; W. B. Rice, of Quincy, Mass., who presented that city with a hospital; Dr. Dudley P. Allen, of Cleveland, O.; Drs. Clarence J. Blake and Maurice H. Richardson, of the Massachusetts General Hospital; J. W. Lovett; John B. Walker, of New York; and Dr. Geo. B. Shattuck, the President-elect of the Club. Dr. J. Bapst Blake read a humorous poem.

TUBERCULOUS CATTLE. — The Committee on Agriculture, of the Massachusetts House of Representatives, gave a hearing last week on the Bennett bill for an appropriation of \$50,000 for expenses in connection with the suppression of contagious diseases among cattle, horses, etc. The bill was introduced for the purpose of bringing the subject of tuberculosis before the Committee on Agriculture, and the amount named in the bill was of no special significance. The Cattle Commissioners ask for \$150,000. The advisability of reducing the amount of compensation paid by the State, from the full amount to two-thirds, or even one-half of the value of the animal was discussed. The opinion was expressed that the Massachusetts law should be modified to conform to the United States law relative to the condemnation of meat from alleged diseased animals. Dr. Herrick, of Worcester, spoke of the decrease in the amount of general tuberculosis found. In 1895 the amount of general tuberculosis was 32.6 per cent., in 1896 it was 25.1 per cent., and in 1897 but 3.61 per cent. of general tuberculosis was found.

A SEPARATE MASSACHUSETTS BOARD OF LUNACY. — At a meeting of the Committee of the Massachusetts Medical Society on State and National Legislation, and the committees appointed by the Suffolk District Medical Society, the Boston Society for Medical Improvement, and the Boston Medico-Psychological Association to petition the Legislature of Massachusetts to establish a separate Board of Lunacy, which was held January 31st, the following propositions were unanimously adopted to be advocated at a hearing before the Committee on Public Charitable Institutions on Wednesday, February 9th, at 10.30 o'clock, at the State House: "(1) A separate board of lunacy

ACUTE CATARRHAL BRONCHITIS.—The *Medical Record* gives two formulas, the first by Wood and the second by Da Costa:

R Potass. citrat.	3 ss
Apomorphinæ hydrochlor.	gr. i
Syr. ipecacuanhæ.	3 ss
Succilimonis.	3 ij
Syr. simplis.	q. s. ad 3 iv
M. S. 3 ss. in water every three hours.	
R Vini ipecacuanhæ	3 ij
Liq. potass. citrat.	3 iv
Tr. opil camph.	
Syr. acaciæ	ss 3 i
M. S. Tablespoonful three times a day.	

A WASH FOR THE ITCHING OF THE SCROTUM.—The *Revue Médicale* for November 24th gives the following as Leistikow's formula:

R Corrosive sublimate	from 4½ to 7½ grs.
Alcohol	375 grs.
Chloroform	5 drops
Distilled chamomile water	375 grs.
Cherry-laurel water	750 grs. M.

SUPPOSITORIES FOR BLEEDING HEMORRHOIDS.—The following is taken from the *Medical News*:

R Ferri subeulph.	gr. iii
Plumbi acetat.	gr. i
Mass. hydrarg.	gr. ss
Ol. theobrom.	q. s
M. Ft. suppos. No. 1. Sig. Insert one suppository morning and evening.	

ANESIN, A NEW LOCAL ANESTHETIC.—This substance, which has been described as an aqueous solution of acetone chloroform, has been brought forward by Vamossy as a substitute for cocaine; he says it is a good local anesthetic, free from toxic properties.—*Deutsche Medicinische Wochenschrift*.

FOR THE RELIEF OF MIGRAINE.—Excellent results are reported by Eshner from the administration in this affection of the fluid extracts of gelsemium and cannabis indica. The dose is three to five drops of each, given three times daily, until physiologic action becomes apparent.—*Medical News*.

Correspondence.

CLIMATE OF SOUTHERN CALIFORNIA.

REDLANDS, SAN BERNARDINO Co., CAL.
January 21, 1898.

MR. EDITOR: The climate of Southern California is a source of never-ending surprises, even to those who know it best. And, in spite of all that has been written in reference to it, few people in the East have definite ideas upon the subject. They believe it to be one of the most genial, sunny and healthful climates in the world; and this it undoubtedly is, but its variations in temperature, its rainfall, and its effects upon invalids and others who seek benefit from it are little understood.

This uncertainty is not altogether the fault of writers. The variations in the climate of the very limited section of country known as Southern California are so marked and depend so much upon purely local conditions that the mind of the reader is confused, unless he has been in the country and understands its topography. Thousands of physicians in the East send patients to California in a haphazard way, simply giving them general instructions to "go to South California and stay out doors." As often as otherwise these patients, on arrival, find everything different from what they had anticipated, are bitterly disappointed, and fail to receive the benefits that they had anticipated. In many instances this result is due to ignorance of the country. In many others it is inevitable,

because the climate is expected to perform miracles—something that no climate ever does.

Statistics are of very little value, although physicians and others are fond of revelling in them. They study reports of the average rainfall, the relative humidity, the number of sunshiny days, and the daily variations of the thermometer, and attempt to deduce from these a definite opinion as to whether the climate will benefit a particular case. The difficulty is that all of these facts are secured by averaging the conditions obtaining for a number of years; and, when the individual reaches Southern California, he finds that he has come in an extreme year, and that the weather is altogether too wet or too dry, too warm or too cold, to suit his case. The result is disappointment.

Take the rainfall, for instance. The average in a certain interior town is twenty inches a year. A fairly steady shower for twenty-four hours means an inch and a half of rain. Therefore the rainfall at this place is equivalent to about thirteen really rainy days in a year. Yet in one exceptional year, within the last decade, there was rain for forty consecutive days in this vicinity. A careful record shows that, during the past 27 years, the annual rainfall at this place has varied between 8.11 inches and 37.51 inches. The former record was in 1895-96, the latter was in 1883-84, the record being kept from July to July, and not from January to January. During January of the dry season there was a trifle over two inches of rain; during March there were nearly three inches; during February there was none. The remaining three inches were scattered through four months. This was certainly a dry, warm year. During the wet season there was rain every month except August; and there were heavy rains every month from December to May inclusive. The heaviest were in February, with a total of 12.20 inches, March with nearly 10 inches, and April with nearly six. The tourists to Southern California that year were doubtless thoroughly disgusted, for they always desire sunshine. Yet it is probable that, taking into consideration all of the residents of this particular section of Southern California, the climate of the wet year was productive of less sickness than the climate of the dry year. This is an anomaly which the Eastern physician, who regards the State solely as a refuge for consumptives, fails to understand. He is looking for a dry atmosphere, an air which will arrest the rapid destruction of tissues caused by consumption, and he does not stop to consider other conditions of health. But it is doubtless true that a temporary excess of moisture in the atmosphere, in a climate which is naturally dry, is better for the average citizen than a deficiency.

A dry year in California is more productive than a wet one of colds, pneumonia, catarrh, *la grippe* and similar diseases. This is particularly true of the interior points. The reason for this is in the great difference in temperature, in a dry season, between sun and shade and the rapid falling in temperature in the early evening. Allured by the warmth and brightness, people exercise in the sun and then sit or stand in the shade without precautions against taking cold. Perspiration is quickly checked and a cold is the result. As soon as the sun goes down in this dry climate the earth parts with its heat very rapidly, as it is quickly dissipated through the thin atmosphere. There is accordingly a sudden chill on the air early in the evening and, unless one is prepared for it, a cold is often the result of a few minutes' exposure to this chill. People who have resided in the country for years complain that they take cold as readily as they formerly did in the East. Diseases resulting from colds are very common, although not usually as severe as the same ailment in a more severe climate. *La grippe*, for instance, is prevalent, but in a comparatively mild form, not often producing complications which threaten life.

A dry season is much more productive than a wet one of those electrical storms which are the most disagreeable feature of Southern California's climate. The deserts which compass the whole region on the north, the east and the southeast are storehouses of electrical energy. In

the East when the atmosphere is surcharged with electricity the result is a thunder-storm, and the electricity passes from the clouds to the earth in bolts of lightning. In California, under similar conditions, there is a wind-storm, blowing from the deserts south or westward. This often extends to the ocean, although its worse effects are felt inland. In winter it is simply a harsh wind, tempered by the snows on the mountains over which it passes. In summer it frequently raises the temperature to 106°, or even 110° in the shade. There is a disagreeable tension about it, summer or winter, which is exceedingly trying to the nerves. In an average year there is perhaps half-a-dozen of these tempests; in a dry year there are frequently twice or thrice that number.

Although statistics are of no value in particular cases, because the tourist who desires an average year invariably happens upon an "exceptional" one, yet they serve to illustrate general conditions and may be quoted for that purpose. February is usually a snug month in the East. The following is an accurate record of variations in temperature for February, 1894, at an inland town in Southern California well known as a health resort. Its altitude is 1,500 feet. The readings were taken from a reliable, self-registering thermometer hanging out of doors but partially protected by a veranda. In the open the minimum readings would have been three or four degrees colder. The minimum and maximum readings for each day are stated together omitting the days of the month, and are as follows: 33, 58; 33, 56; 38, 59; 45, 60; 35, 60; 44, 58; 37, 58; 42, 58; 37, 58; 38, 51; 32, 54; 32, 55; 34, 59; 37, 63; 42, 67; 39, 55; 32, 57; 33, 59; 36, 57; 46, 55; 47, 63; 42, 58; 36, 64; 38, 64; 37, 69; 40, 66; 44, 70; 42, 68. The average minimum temperature of this month was a trifle over 38°; the average maximum a shade less than 60°. The relative humidity varied between 18, which point is reached twice, and 67, which point is also reached twice. The average was about 42. This was a dry year, the total rainfall being only a little over 10 inches. During the month in question only an inch of rain fell. There were only two rains, both during the night. Five days were cloudy, and there was one "norther," or desert wind full of electricity.

Such a month would be quoted as typical by enthusiasts upon the climate of Southern California. No rain except at night, and then only a little; comfort in sitting out of doors in the sun every day except the five cloudy days; no frost; no fog; only one disagreeable wind. Yet, even in such a month, there are dangerous possibilities for taking cold for those who, from ill-health, are susceptible to cold. The maximum temperature is usually reached at one or two o'clock in the afternoon and the air continues warm until the sun sets at five or a little later. Then there is a sudden and very perceptible drop, sometimes amounting to ten degrees. After sunset the air frequently continues to grow colder until sunrise the next morning, the minimum usually being reached just before sunrise. During the pleasant part of the day the air is cool enough to be bracing yet the delicious sunshine permits one to sit or walk or ride at will out of doors. The danger is in neglect to protect the body properly or to go within doors soon enough at nightfall.

The contrasts already mentioned give the State a bad reputation with disappointed tourists. An Eastern lady writing in *Lippincott's* a few months ago, said: "As every one knows, when the rainy season sets in in Southern California it is a practical deluge, which lasts for days and sometimes for weeks." This is certainly a very inaccurate statement, easily disproved by such records as those quoted above. Yet it would apply in a way to exceptional winters, and the person who wrote it probably visited California in an exceptional winter. During the days just before and just after Christmas, 1897, there were eight during which there was frost in Southern California, and, in fact, all over the State. In exposed localities the thermometer went to 21°. People found difficulty in keeping warm, and good fires were in order from early morning to late at night. Overcoats were in demand. During the next ten

days there was no frost. Doors and windows were left wide open the greater part of the day. Families sat in comfort throughout the evenings without a fire, and people rode and walked without overcoats. Roses, geraniums and other flowers were everywhere in bloom, uninjured by the cold weather preceding. Within a week, still later, there was a snow-storm over a wide area of Southern California. It blocked the mountain roads, and the snow was two feet deep in the valleys close to the mountains. In a popular tourist resort, also the centre of one of the most noted orange-growing districts, the snow was two inches deep all over the town and, in some places, orange-trees were broken down by the combined weight of the snow and the fruit. The snow was wet and clung to the foliage, but did not freeze to the trees, and it disappeared after an hour or two of sunshine. This was the severest snow-storm since January 12, 1882, when twelve inches of snow fell in the same valley.

The tourist, happening to arrive in this section during the period of three weeks covering these three sudden transformations in weather, would have been told that the frost and the snow were exceptional. This statement would have been true but he would not have believed it. In fact, tourists are so often told that the weather of Southern California is "exceptional," that they greet the word with an exasperating smile of incredulity; and they very often write or report to their friends that the climate is a fraud and the people are all liars. This is a deplorable state of affairs, but it cannot be helped as long as the climate persists in playing these tricks upon everybody.

(To be continued.)

RECORD OF MORTALITY

FOR THE WEEK ENDING SATURDAY, JANUARY 29, 1898.

Cities.	Estimated population.	Reported deaths in each.	Deaths under five years.	Percentage of deaths from					
				Infectious diseases.	Acute lung diseases.	Diarrheal diseases.	Typhoid fever.	Diphtheria and group.	
New York . . .	3,438,899	689	248	12.45	19.35	1.75	.30	3.00	
Chicago . . .	1,619,226	—	—	—	—	—	—	—	
Philadelphia . . .	1,214,256	458	143	14.52	12.76	1.32	2.20	7.70	
Brooklyn . . .	1,160,000	—	—	—	—	—	—	—	
St. Louis . . .	570,000	—	—	—	—	—	—	—	
Baltimore . . .	550,000	158	44	6.83	13.23	2.52	1.89	2.52	
Boston . . .	517,732	188	51	7.95	16.96	.53	2.12	2.66	
Cincinnati . . .	405,000	107	—	7.44	15.81	—	1.86	.93	
Cleveland . . .	350,000	79	23	1.26	8.82	—	1.26	—	
Pittsburg . . .	285,000	87	28	11.50	20.70	3.15	2.30	3.45	
Washington . . .	277,000	100	28	8.00	18.00	1.00	4.00	1.00	
Milwaukee . . .	275,000	—	—	—	—	—	—	—	
Worcester . . .	105,050	32	8	9.39	3.13	—	—	6.26	
Nashville . . .	87,764	24	5	4.16	16.64	—	4.16	—	
Fall River . . .	95,919	32	9	18.78	18.78	15.65	3.13	—	
Lowell . . .	87,183	23	5	21.75	—	—	—	—	
Cambridge . . .	86,512	32	9	9.39	12.62	—	—	9.39	
Lynn . . .	65,220	16	10	—	—	—	—	—	
Charleston . . .	65,165	—	—	—	—	—	—	—	
New Bedford . . .	62,416	14	1	—	21.42	—	—	—	
Lawrence . . .	55,510	17	6	11.76	23.52	—	—	5.88	
Springfield . . .	54,790	13	6	7.69	7.69	—	—	7.69	
Holyoke . . .	42,364	8	1	12.50	12.50	—	—	12.50	
Portland . . .	40,000	—	—	—	—	—	—	—	
Salem . . .	36,062	3	0	—	—	—	—	—	
Brockton . . .	35,853	—	—	—	—	—	—	—	
Malden . . .	32,894	9	2	—	22.22	—	—	—	
Chelsea . . .	32,716	9	0	—	33.33	—	—	—	
Haverhill . . .	31,406	7	0	—	—	—	—	—	
Gloucester . . .	29,775	—	—	—	—	—	—	—	
Newton . . .	28,990	7	0	—	28.56	—	—	—	
Fitchburg . . .	28,392	1	1	—	—	—	—	—	
Taunton . . .	27,812	8	2	—	25.00	—	—	—	
Quincy . . .	22,562	6	3	33.33	—	—	—	—	
Pittsfield . . .	21,891	—	—	—	—	—	—	—	
Waltham . . .	21,812	5	1	—	—	—	—	—	
Everett . . .	21,575	1	0	—	—	—	—	—	
Northampton . . .	17,448	—	—	—	—	—	—	—	
Newburyport . . .	14,794	6	1	16.66	16.66	—	—	16.66	
Amesbury . . .	10,920	—	—	—	—	—	—	—	

Deaths reported 2,116; under five years of age 656; principal infectious diseases (small-pox, measles, diphtheria and croup, cerebro-spinal meningitis, diarrheal diseases, whooping-cough,

erysipelas and fevers) 229, acute lung diseases 350, consumption 274, diphtheria and croup 83, diarrheal diseases 36, typhoid fever 28, measles 27, scarlet fever 22, whooping-cough 17, cerebro-spinal meningitis 10, erysipelas 6.

From measles New York 17, Philadelphia 10. From scarlet fever New York 20, Boston and Lawrence 1 each. From whooping-cough New York 6, Cincinnati 5, Philadelphia and Pittsburgh 2 each, Boston and Woburn 1 each. From cerebro-spinal meningitis New York, Boston and Washington 2 each, Worcester and Woburn 1 each. From erysipelas Philadelphia 3, New York 2, Boston 1.

In the thirty-three greater towns of England and Wales, with an estimated population of 11,218,378, for the week ending January 22d, the death-rate was 20.6. Deaths reported 4,440; acute diseases of the respiratory organs (London) 567, measles 228, whooping-cough 134, diphtheria 55, fever 42, scarlet fever 39, diarrhea 23.

The death-rates ranged from 13.5 in Cardiff to 23.4 in London; Birmingham 21.1, Bradford 20.5, Croydon 15.1, Gateshead 19.1, Halifax 20.5, Hull 18.1, Leeds 20.2, Leicester 16.2, Liverpool 22.8, Manchester 20.6, Newcastle-on-Tyne 15.9, Nottingham 19.0, Portsmouth 16.2, Sheffield 19.7, Sunderland 20.3, West Ham 15.3.

METEOROLOGICAL RECORD

For the week ending January 29th, in Boston, according to observations furnished by Sergeant J. W. Smith, of the United States Signal Corps:—

Date.	Baro- meter	Thermom- eter.			Relative humidity.			Direction of wind.		Velocity of wind.		We'th'r.		Rainfall in inches.
	Daily mean.	Daily mean.	Maximum.	Minimum.	8.00 A. M.	8.00 P. M.	Daily mean.	8.00 A. M.	8.00 P. M.	8.00 A. M.	8.00 P. M.	8.00 A. M.	8.00 P. M.	
S..23	29.40	38	42	34	100	86	93	E.	W.	24	12	R.	O.	.33
M..24	29.90	30	36	25	66	78	72	N.W.	N.W.	18	24	C.	C.	
T..25	30.08	26	32	19	49	62	56	W.	S.E.	10	4	C.	O.	
W..26	29.42	28	34	23	95	89	92	N.E.	N.W.	12	9	N.	O.	.56
T..27	29.74	23	28	18	54	73	64	W.	W.	6	8	C.	C.	
F..28	29.98	12	18	7	44	34	39	N.W.	N.W.	14	8	C.	C.	
S..29	29.93	10	16	3	67	70	68	N.	N.W.	12	14	O.	C.	1.49

* O., cloudy; C., clear; F., fair; G., fog; H., hazy; S., smoky; R., rain; T., threat; N., snow. † Indicates trace of rainfall. ☉ Mean for week.

OFFICIAL LIST OF CHANGES IN THE STATIONS AND DUTIES OF OFFICERS SERVING IN THE MEDICAL DEPARTMENT, U. S. ARMY, FROM JANUARY 29, 1898, TO FEBRUARY 4, 1898.

A board of officers to consist of COL. CHARLES H. ALDEN, assistant surgeon-general; MAJOR JAMES C. MERRILL, surgeon; CAPTAIN GEORGE D. DESHON, assistant surgeon, is appointed to meet at the Army Medical Museum Building in this city on Tuesday, April 12, 1898, at 10 o'clock A. M., or at such time thereafter as practicable, for the examination of such officers of the medical department as may be ordered before it to determine their fitness for promotion.

FIRST-LIEUT. BENJAMIN BROOKE, assistant surgeon, is relieved from temporary duty at the Army and Navy General Hospital, Hot Springs, Ark., to take effect April 6, 1898, and will then repair to this city and report in person on April 12, 1898, to the president of the examining board, for examination as to his fitness for promotion, and upon the completion of his examination will report in person to the Adjutant-General of the Army for orders.

The following named officers (assistant surgeons, with rank of First-Lieutenant) will report in person to the president of the examining board appointed to meet at the Army Medical Museum Building in this city, for examination as to their fitness for promotion, and upon completion of their examinations will return to their proper stations: ALEXANDER N. STARK, CHARLES LYNCH, EDWARD L. MUNSON, CHARLES E. B. FLAGG, JAMES M. KENNEDY, GUY C. M. GODFREY, WILLIAM F. LEWIS.

The leave of absence on surgeon's certificate or disability, granted MAJOR CHARLES K. WINNE, surgeon, is extended two months on surgeon's certificate of disability.

MAJOR EGON A. KOEPEKE, surgeon, is relieved from duty at Fort Crook, Neb., to take effect upon the expiration of his present leave of absence, and will then report in person to the commanding general, Department of the Platte, for duty as chief surgeon of that department.

A board of officers to consist of LIEUT.-COL. WILLIAM D. WOLVERTON, deputy surgeon-general; MAJOR JOHN VAN R. HOFF, surgeon; CAPTAIN FRANK R. KEEFER, assistant surgeon,

is appointed to meet at Vancouver Barracks, Wash., on Tuesday, February 22, 1898, at 10 o'clock A. M., or at such time thereafter as practicable, for the examination of such officers of the Medical Department as may be ordered before it to determine their fitness for promotion.

FIRST-LIEUT. JOHN S. KULP, assistant surgeon, will report in person on February 22, 1898, to the president of the examining board, appointed to meet at Vancouver Barracks, Wash., for examination as to his fitness for promotion.

SOCIETY NOTICES.

SUFFOLK DISTRICT MEDICAL SOCIETY.—The Section for Clinical Medicine, Pathology and Hygiene. There will be a regular meeting of the Society at 19 Boylston Place, Wednesday, February 16th, at 8 P. M.

At 8 o'clock. Short communications by Dr. C. J. White and others.

At 8.30 o'clock. Dr. R. C. Cabot: "Recent Advances in Blood Diagnosis, with Lantern Demonstration." Dr. H. F. Hewes will open the discussion.

E. W. TAYLOR, M.D., Secretary, 416 Marlborough St.

THE BOSTON MEDICAL SOCIETY.—A regular meeting of the Society will be held on Tuesday evening, April 8, 1898, at 47 Chambers Street, at 8.30 P. M.

Subject: "When to Operate on a Lacerated Perineum," by Dr. J. S. Lockhart.

The profession at large is invited to be present.

M. GERSTEIN, M.D., Secretary.

RECENT DEATHS.

AARON YOUNG, M.D., M.M.S.S., died at Belmont, January 13, 1898, aged seventy-nine years.

WOODBIDGE RUGGLES HOWES, M.D., M.M.S.S., died in Hanover, February 5, 1898, aged eighty years.

THEOPHILUS PARVIN, M.D., LL.D., professor of obstetrics and gynecology at the Jefferson Medical College, died at his home in Philadelphia, on January 29th, at the age of sixty-nine years. Dr. Parvin was born at Buenos Ayres, Argentine Republic, where his father was a missionary, on January 9, 1829. He received his early education in Philadelphia, and subsequently at Indianapolis, where he was graduated from the University of Indiana in 1847. He then returned to Philadelphia, where he took a course in medicine at the University of Pennsylvania, obtaining his degree from the medical school there in 1852. He practised for a while at Indianapolis. He filled chairs successively at the Ohio State Medical College, the University of Louisville and the Indianapolis Medical College. He was called to the chair of obstetrics and gynecology at the Jefferson Medical College in 1883. Professor Parvin was a thorough and accurate scholar, and early won a reputation as an authority in his chosen branch. He was an honorary member of several obstetrical societies in Edinburgh, Berlin and elsewhere, and was always a prominent contributor to obstetric literature.

BOOKS AND PAMPHLETS RECEIVED.

Electric Treatment in Gout and the Uric-Acid Diathesis. By Robert Newman, M.D., New York. Reprint. 1897.

Serum Therapy with Report of Cases. By John M. Allen, A.M., M.D., Kansas City, Mo. Reprint. 1897.

Sir James Young Simpson and Chloroform (1811-1870). By H. Laing Gordon. New York: Longmans, Green & Co. 1897.

Tonic and Spasmodic Intestinal Contractions with Report of Cases. Appendicitis Complicating Ovarian Cyst and Stimulating Torsion of the Pedicle, with Three Cases. By X. O. Werder, M.D., Pittsburg, Pa. Reprints. 1897-98.

Orthopedic Surgery. By James E. Moore, M.D., Professor of Orthopedic and of Clinical Surgery in the College of Medicine of the University of Minnesota; Fellow of the American Surgical Association; Member of the American Orthopedic Association; Surgeon to St. Barnabas Hospital, etc. With 177 illustrations. Philadelphia: W. B. Saunders. 1898.

Elements of Latin for Students of Medicine and Pharmacy. By Geo. D. Crothers, A.M., M.D., Teacher of Latin and Greek, St. Joseph (Mo.) High School; formerly Professor of Latin and Greek, University of Omaha, and Hiram H. Bice, A.M., Instructor in Latin and Greek, Boys' High School, New York City. Philadelphia, New York and Chicago: The F. A. Davis Co. 1898.

Manual of Pathology, including Bacteriology, The Technic of Post-Mortems, and Methods of Pathologic Research. By W. M. Coplin, M.D., late Professor of Pathology and Bacteriology, Jefferson Medical College, and Pathologist to Jefferson Medical College Hospital and to the Philadelphia (Blockley) Hospital, etc. Being a second edition of the author's "Lectures on Pathology," rewritten and enlarged. With 268 illustrations, many of which are original. Philadelphia: P. Blakiston, Son & Co. 1897.

Original Articles.**MASSACHUSETTS GENERAL HOSPITAL.**

CLINICAL MEETING OF THE MEDICAL BOARD, DECEMBER 10, 1897.

DR. W. T. COUNCILMAN, by invitation, spoke on
CEREBRO-SPINAL MENINGITIS.

Cerebro-spinal meningitis has prevailed in Boston in the form of an epidemic during the past winter and spring. One hundred and eleven cases of the disease were treated in the Boston City Hospital, the Massachusetts General Hospital and the Children's Hospital between June, 1896, and October 1, 1897. At the time of the appearance of the first case in June there had been no case of this form of meningitis in the hospitals for a number of years. The first case occurred in June, 1896, one in the following September and three cases in December. In 1897 one case occurred in January, 10 in February, 23 in March, 29 in April, 21 in May, 14 in June, seven in July and three in September. At the present time the disease continues to prevail, and many more cases have been seen this autumn than in the autumn of 1896.

The disease has been epidemic in Boston a number of times. The first appearance of the disease in Massachusetts was in 1806, one year after its appearance in Geneva in 1805. It has been generally supposed that this was its first appearance, but it is more than possible that many of the early epidemics were this disease, although in the absence of clear clinical records and post-mortem examinations it is impossible to be certain of this. The first epidemic of the disease prevailed in the New England States until 1816. There was another epidemic between 1864 and 1866, and still another in 1874.

A table of the ages of the 111 cases shows that the disease prevailed principally in young adults. Only one case was seen in a child under one year of age. A table of ages of our 111 cases agrees almost exactly with the table of the same number of cases given by Leichtenstern in his report of the epidemic in Cologne in 1885. A great deal of stress should be laid on the rarity not only of epidemic meningitis but of all forms of meningitis in children under one year of age. Nothing more clearly shows the inaccuracy of general mortality tables than the ages given in the cases of meningitis. In nearly all of these tables a large percentage of cases is attributed to children under one year of age. In looking over these mortality tables one receives the impression that errors in the diagnosis of meningitis are not uncommon.

The mortality of the 111 cases was 68 per cent., which is comparatively high. Hirsch gives the mortality as varying from 20 to 75 per cent. The greatest actual and relative mortality was found in the cases in April and May. Most of the epidemics of cerebro-spinal meningitis reported in the literature have appeared in the late winter and spring, although there have been a number of exceptions to this general rule. A map of the city giving the distribution of the cases shows them to have been pretty well scattered over the city, there being only two localities where they were especially numerous. Generally but a single case came from the same family, although there were several exceptions to this, in one case three coming from the same family, and in another two.

A great deal of interest attaches to the sporadic cases of cerebro-spinal meningitis. We can only be certain that these sporadic cases are the same as the epidemic form when the organism associated with the epidemic form has been found in them. So far we have only been able to find but one instance in which the diplococcus intracellularis of Weichselbaum, the organism of epidemic cerebro-spinal meningitis, was found in a sporadic case. In most of the sporadic cases no cultures have been made, but so far as we can judge from the clinical and anatomical descriptions many of these represented the true epidemic form. Almost all observers who have been acquainted with the epidemic form of the disease speak of the presence of sporadic cases occurring both before and after the epidemics. The single cases seen here in June and September may be considered as sporadic. We think it may be generally assumed that cases of sporadic meningitis which recover are of the epidemic variety. So far we have not been able to find a case, which from its association with other conditions could be regarded as due to the pneumococcus or streptococcus, which has recovered. Certainty with regard to the sporadic cases can only be known by careful anatomical and bacteriological investigation. The bacteriological examination of the fluid removed by spinal puncture is of special importance.

The first description of an organism which might be regarded as the diplococcus intracellularis was given by Leichtenstern in 1885. He found in the exudation in the meninges a few diplococci, sometimes single, sometimes in groups, similar in arrangement to gonococci, enclosed in white corpuscles. Schwabach found diplococci in the pus cells in a case of otitis media secondary to meningitis.

Most of the bacteriological examinations made on cases of meningitis up to the past few years have seemed to show that the pneumococcus was the cause both of the epidemic and most of the sporadic cases. This was probably due to the fact that the pneumococcus is very frequently found in sporadic meningitis, and in the epidemic form the diplococci may either be mistaken for the pneumococci or an accompanying pneumococcus infection mask the diplococci.

The first definite description of this organism was given by Weichselbaum in 1887. The organism was described by him as a diplococcus which in the lesions is found almost solely within the cells. In cultures the organisms grow singly, in pairs and in tetrads. Both in cultures and in the tissues they were decolorized by Gram. There were few confirmations of the discovery of Weichselbaum until 1895, when Jäger found the same organism in 12 cases of epidemic cerebro-spinal meningitis which occurred in the garrison at Stuttgart. Jäger's description added but little to the previous description of Weichselbaum.

Post-mortem examinations were made in 35 of the 111 cases, and the diplococcus intracellularis was found in cultures, on microscopic examination of the exudation, or in sections of the tissues, in all but four cases. In most of the cases they were found in all three methods of examination.

In one of the four negative cases they had previously been found in the fluid withdrawn during life by spinal puncture. Two of the other cases were very chronic, and the fourth was a chronic case of mixed infection with tuberculosis. In a certain number of cases cultures failed to give the organisms although

they were abundantly present as shown by cover-slip examination of the meninges and microscopic sections. The organism is very difficult to grow and from a number of tubes inoculated, in many cases only one or two tubes would show a few single colonies. We have found Löffler's blood-serum mixture best adapted for its growth. Had agar been used for the primary cultures there is no doubt that in many cases no growth would have been obtained. There is considerable irregularity in staining, some organisms being brightly stained, others more faintly. Sometimes these differences in staining are seen in a single pair of organisms, one being more brightly stained than the other. There may also be considerable variation in size, and the larger organisms stain more imperfectly. In these swollen organisms there is often a brightly stained point in the centre while the remainder of the cell is but slightly colored. This condition may have been mistaken by Jäger for a capsule around the organism. These variations in size and staining appear to be due to degeneration and are more common in old than in fresh cultures. In the tissues the diplococcus is almost strictly confined to the interior of polynuclear leucocytes. It has no definite position in the cell and is never found in the nucleus. The number of organisms found in the cells varied from a single pair to such numbers that the nucleus of the cell was frequently obscured. In no case were the diplococci found except in connection with the lesions of the disease. So far as could be learned from cultures of the blood, liver, spleen and kidneys the organism does not produce septicemia.

Lumbar puncture was performed in 55 cases, and in a few cases several punctures were made in the same individual. In the fluid obtained diplococci were found on microscopic examination or in cultures in 38 cases; in 17 of the cases they were absent. The average duration of time from the onset of the disease before spinal puncture was made was seven days in the positive cases and 17 days in the negative. The longest time after onset in which a positive result was obtained was 29 days.

The character of the fluid obtained by spinal puncture varied greatly. In some cases, even when diplococci were found in it, it was almost clear, showing only a slight turbidity when examined against a dark background. In most cases where the puncture was made early in the disease the fluid was turbid, and in twenty-four hours a large amount of sediment formed at the bottom of the tube. The amount of fibrin in the exudation varied greatly. In a few cases so much was present that the fluid coagulated and the tube could be inverted. In one chronic case of marked intermittent character three punctures were made, one before, one after and one during exacerbation. In the fluid obtained before and after the exacerbation no diplococci were found. The fluid obtained during the exacerbation was more cloudy, and contained diplococci. These would seem to show that in the intermittent cases the exacerbations are due either to a fresh-growth of the organisms or to a fresh invasion of the parts which had been previously comparatively free. In the fluid obtained in the early punctures almost the only cellular elements were polynuclear leucocytes. Later large epithelioid cells and lymphoid cells were found among the pus cells. No ill effects were seen from spinal puncture.

Too much cannot be said of the importance of spinal

puncture in making the diagnosis of the disease. As a diagnostic measure it ranks in value with the examination of the sputum. There should always be a microscopical and bacteriological examination of the fluid obtained in order to ascertain what organism is present. In no other way will it be possible to arrive at certainty with regard to the nature of the sporadic cases.

In all of the post-mortem examinations careful microscopic examination was made of the tissues. In general for histological purposes portions of the brain and cord and other organs were hardened both in Zenker's fluid and in alcohol. For the study of nerve degeneration small pieces of tissue were hardened in Muller's fluid or in formaldehyde, followed by Muller's fluid, preparatory to staining by Marchi's method. The amount of the exudation varied in the acute and chronic cases. In the most chronic cases there was general thickening of the meninges and only small masses of degenerated cells were found in the place of the former exudation. In cases dying two or three days after the onset there was but a slight amount of purulent exudation found. The amount of fibrin in the exudation varied, and was never so great as was found in cases of meningitis due to the pneumococcus.

In addition to the acute inflammation found in the meninges of the brain and cord, lesions of the tissue were found. In places there was a circumscribed infiltration of the tissue with pus cells which extended from the infiltration in the meninges. The vessels were dilated, and the spaces around the vessels filled with pus cells, which extended into the surrounding tissue. In two cases there was extensive softening, with purulent infiltration and hemorrhage in the cortex of the cerebellum. Lesions were found in both the white and gray matter, consisting principally in foci of fine hemorrhages, with some purulent infiltration. There was a definite increase in the cells of the neuroglia, both in connection with the acute lesions and at a distance from them. The neuroglia cells were swollen, their nuclei large and vascular, and contained much chromatin. Around these large nuclei there was a faintly stained irregular mass of granular protoplasm. Many of the cells contained two nuclei, and in places there were groups of four or more nuclei with a considerable amount of protoplasm around them. In all of these places nuclear figures were found. They presented the same form as other nuclei, and in some cases both spindles and centrosomes were distinguished. In addition to the changes in the neuroglia, proliferation was found in the connective tissue of the brain and cord around the blood-vessels. The inflammation of the meninges extended along the cranial nerves and along the anterior and posterior spinal nerve roots.

The cranial nerves most affected were the second, fifth and eighth. The examination of the eyes in two cases showed a choroido-iritis, which was due to a direct extension along the sheath of the optic nerve. Diplococci were found here and in the purulent exudation within the eye. The same thing was true of the ear. Secondary otitis media was found in a number of cases, some of which recovered. In all of these numbers of diplococci were found in the pus.

The nasal secretion in 19 of our cases was examined by means of cover-glass preparations, the material being taken from high up in the nasal cavities with the aid of a platinum loop. Of the 19 cases, 10

showed the presence in the nasal secretion of diplococci decolorized by Gram's method, and identical in morphology with the diplococcus from the brain. Similar Gram decolorizing diplococci were also found within leucocytes in the nasal secretion of two cases of convalescing meningitis. Attempts were made to isolate this organism in cultures in 10 cases in which microscopic examination showed them to be present, but without success.

With reference to the occurrence of this organism in the nasal secretion of patients not affected with meningitis 12 hospital patients chosen at random were examined. In the nasal secretions of two among these 12, diplococci like the preceding were found by cover-glass examination. They were not cultivated. From the results of these examinations it would seem either that the diplococcus intracellularis may be met with in the nasal secretion of patients who have not meningitis or that other species of diplococci identical with this morphologically and in staining peculiarities may be found.

It is greatly to be regretted that it was not possible to obtain cultures of the organisms from this locality, for only by that method combined with inoculations can the identity be established. At any rate it is impossible to regard the presence of diplococci in the nose, decolorizing by the Gram stain, as of so much diagnostic value as has been claimed by Scherrer.

Degenerations were shown by the Marchi method in the nerves of both the brain and cord. The spinal ganglia were affected in all cases, and in four cases in which the Gasserian ganglion was examined an acute inflammation (sometimes to an intense degree) was found in this. Degeneration was shown by the Nissl method in the ganglion cells of the brain and cord. The studies of this degeneration have not been completed.

The condition of the lung is interesting on account of the relation which has very generally been supposed to exist between epidemic cerebro-spinal meningitis and pneumonia. In 13 cases there was merely congestion with more or less edema. In seven cases there was broncho-pneumonia, more marked in the lower posterior portion of the lung. In two cases there was characteristic croupous pneumonia, one in the stage of red hepatization bordering on gray. Pneumococci were found in these cases in cultures and on microscopic examination. In eight cases pneumonia due to the diplococcus intracellularis was found. Nearly all of these cases came from the last part of the epidemic. It is very possible that the lesions which in some of the earlier cases were described simply as broncho-pneumonia, were really due to the diplococcus intracellularis.

These lesions consisted macroscopically of areas of consolidation in various parts of the lung, more particularly in the lower lobe, and they were most numerous beneath the pleural surface. The foci varied in size from a pin's head up to that of a pea, and on section some of them resembled small hemorrhages in the tissue. In other cases the periphery of the area was distinctly hemorrhagic and the centre opaque and yellowish. In one case the consolidation of the lung was so extensive that it might easily have been regarded as croupous pneumonia, particularly as the pleura over it was covered with a definite fibrinous exudation. On section, this large area was composed of a number of irregular grayish foci, with softened centres, and

with hemorrhagic and edematous tissue between them. The lung tissue in the yellowish centres was frequently broken down, and pus oozed from this. On microscopic examination, the central areas showed in most cases a purulent infiltration of the tissue with beginning abscess formation. The alveoli contained large numbers of pus cells; their walls were found infiltrated with pus and in places entirely broken down. The foci of consolidation did not appear to be bronchial in origin. The bronchi in the vicinity often contained pus cells but their walls were not infiltrated.

The duration of the disease in the cases in which diplococcus pneumonia was found was: in two cases, three days; in two cases, two days; in two cases, five days; in one case, nine days; in one case, 23 days; and in one case, 74 days. It will be seen from this that the lung complications due to the pneumococcus can take place in almost any period of the disease. In the case of 74 days' duration the lesions in the brain and cord could be regarded as almost completely healed, and the lesions in the lungs were acute. In one case in which the apparent history of the disease was of only two days' duration, the lesions were so advanced that they seemed possibly to antedate those of the brain, providing the history as given by the patient's relatives was correct. Immense numbers of diplococci were found in the pus cells in the lung. They were most numerous in the cells in the centres of the foci where softening was taking place. In the centre of one of the foci a small branch of the pulmonary artery occluded by a thrombus formed of pus cells containing large numbers of diplococci was found. It seems probable that this thrombus may have come as an embolus from the meninges and may have produced an infection of the surrounding tissue.

There was great variation in the size of the spleen. In general it was not much enlarged, and was probably smaller than in most of the acute infectious diseases. In only three cases was it found considerably enlarged. The average weight in the adult cases was 163 gm. The lymphatic glands in the uncomplicated cases were never found enlarged.

The liver presented no change beyond acute degeneration. In two cases extensive acute lesions were found in the kidneys. In one of these the acute lesions had no connection with the meningitis, but were due to an accompanying infection with diphtheria. In the other case there was an acute hemorrhagic nephritis. In this there was an accompanying acute pericarditis, the organism causing which could not be ascertained. The only lesions found in the kidney which could be properly attributed to the meningitis were acute degenerative lesions which were always present.

The intestinal canal was found normal in every case.

In two cases there was acute pericarditis, accompanied in one case with foci of necrosis and purulent infiltration of the myocardium. In several other cases in which the myocardium was examined histologically it was found normal.

Lesions of the skin were found in but one of the cases on which post-mortem examination was made. In this case over the upper and lower extremities, chest and abdomen, there were numerous small, dark-purplish spots in the skin, varying in size from a pin's head up to that of a pea. On microscopic examina-

tion of these areas there was intense congestion and dilatation of the blood-vessels of the skin, with small and diffuse hemorrhages immediately beneath the epithelium. In some of the larger areas there was some purulent infiltration in the centre. No diplococci were found in these lesions.

There is no doubt that acute meningitis may be produced by the entrance into the meninges of a number of infectious organisms. These forms are rarely primary. The organisms enter the meninges either by the formation of a communication between the meninges and some cavity where they may be accidentally present (as in the middle ear and nose) or by the extension to the meninges of an infectious process in the vicinity (mastoiditis, erysipelas), or they are brought to the meninges by the blood from some other focus in the body (pneumonia, endocarditis). In tuberculous meningitis we have never found a single case in which the lesions in the meninges could be regarded as primary. We believe that all infections of the meninges other than the diplococcus intracellularis are fatal, but this can only be determined by microscopic and bacteriological examination of the exudation obtained during life by spinal puncture. If tubercle bacilli, pneumococci or streptococci are found with the evidences of meningitis in a case which recovers, it would settle the point; clinical evidence, without spinal puncture, will not.

DR. MARK W. RICHARDSON read by invitation a paper on

RECENT BACTERIOLOGICAL STUDIES IN TYPHOID FEVER.

During the past two years no subject, perhaps, unless it be the antitoxin treatment of diphtheria, has inspired more interest among the medical profession, and occupied more space in medical literature than that of typhoid fever.

The cause of this unusual interest has been, as is well known, the discovery of a certain specific, so-called serum-reaction, which takes place when a fluid culture of the typhoid bacillus is treated with the blood of a person afflicted with typhoid fever. This reaction, consisting in a loss of motility in the bacilli, and in a clumping together of the individual organisms, has come to occupy a most important place among our methods of diagnosis. The blood conditions necessary for the production of this phenomenon may appear for the first time at almost any stage of the disease. The earliest recorded case was upon the third day. The average time is about the tenth day; and, in a minority of cases the reaction does not appear until convalescence, or perhaps not until the occurrence of a relapse. Unfortunately the number of these late cases reported continues to increase, and the value of the new phenomenon in diagnosis is thereby considerably diminished. In this connection the experience in the medical wards of the Massachusetts General Hospital since about the middle of August is interesting.¹

Out of 45 cases there was a late reaction in seven, and these came upon the 19th, 23d, 25th, 31st, 37th, 38th and 41st days respectively. Of these, moreover, three appeared first in convalescence when the temperature had been normal 10, 12 and 21 days. We are forced, therefore, to conclude that, whereas a

positive reaction indicates almost absolutely a typhoid infection, present or past, a negative result carries with it little if any diagnostic significance, and in such cases we must look to other procedures, bacteriological or otherwise, for our diagnosis.

The isolation of the typhoid bacillus from the stools has always seemed a most logical method of diagnosis for typhoid fever; but, up to 1895, this procedure was accompanied by almost insuperable bacteriological difficulties. In 1895 Elsner and Capaldi, by the invention of suitable differential media, brought this method of diagnosis within reach; but the almost simultaneous discovery of the serum-reaction by Pfeiffer, and its perfection by Widal, deprived immediately typhoid stools of an interest which was already beginning to be considerable. With the experience, however, that the serum-test has its limitations has come a certain amount of reaction; and it seems probable that the bacteriological examination of the stools will come now into more general use, and make up partially, at least, for the deficiencies of the serum-test. Indeed, such a plan of action has been announced recently by the Board of Health of New York, and it is hoped that the system of public typhoid diagnosis in that city, already very complete, will become of even greater efficiency.

During the past year I have had a considerable experience with typhoid stools, and my conclusions have been in complete accord with those of most other observers. There are few cases in which the bacilli cannot be isolated, although, I must confess, the search can sometimes be a long one. The bacilli rarely appear before the end of the second week, although positive results have been reported as early as the seventh day. Further, the bacilli may persist for a considerable time after the cessation of fever, having been found as late as the 41st day of convalescence. In my work I have made use of the potato-gelatin of Elsner and the agar according to Capaldi, media which are not perfect, by any means, but which serve the purpose fairly well. Hiss, of New York, has announced recently a new differential medium, and it is possible that with it much better results can be obtained. In this connection I will refer once more to four of the seven cases mentioned above as having retarded serum-reactions. In three of these bacilli were cultivated from the stools of the 19th, 20th and 23d days, the reaction appearing first on the 19th, 23d and 25th days respectively. In the fourth case the reaction appeared first on the 37th day, whereas bacilli were found in the urine of the 36th day.

These cases, with other similar ones published by other observers, certainly go to show that cultivation methods can have a considerable value. The investigation of stools is, however, a task which requires not only a considerable knowledge of bacteriological methods in general, but also of typhoid differential media in particular, and the procedure is, therefore, hardly one to be employed by the profession at large. The serum-test, on the other hand, is more susceptible of general use, and could be carried out by any physician who has access to a microscope and a typhoid culture. The more one has to do with the serum-test, however, the more, I think, one realizes that a considerable experience is necessary, oftentimes, to interpret correctly the phenomena which take place under the microscope; and this fact, together with the necessary employment of fresh typhoid cultures, will

¹ The determination of the serum-reactions has been, in all cases, carried out by Drs. Badger and Potter, junior internes at the hospital. For permission to publish the results I am indebted to Drs. Fitz and Shattuck, visiting physicians.

throw most of this work into the hands of those connected with bacteriological laboratories.

I wish to call your attention next to investigations which have been carried on recently with reference to the presence of the typhoid bacillus in the urine of typhoid patients. During the past three months I have made cultivations from 96 specimens of urine from 24 typhoid cases. In 26 of these specimens, representing seven cases, the typhoid bacillus was found. Moreover, the bacilli were always in very large numbers, and in practically pure culture. Indeed, a single drop of urine often contained thousands of organisms, and the gross specimen often showed a distinct cloudiness, due undoubtedly to the immense numbers of bacilli present. The organisms do not appear generally till late in the disease, about the end of the third week, but I have had a positive result as early as the 15th day. The presence of the bacilli in such large numbers is due, I think, not to their excretion as such by the kidney, but to their active multiplication in the bladder. Furthermore, I have found that the bacilli are practically always associated with a certain amount of albuminuria, but that, on the contrary, considerable amounts of albumin may exist without bacilli.

In proving the typhoid cultures thus obtained the following methods were used:

- (1) Hanging drop, for size, shape and motility.
- (2) Growth on gelatin stab and plant.
- (3) Growth on bouillon.
- (4) Growth on sugar agar. No production of gas.
- (5) Growth on peptone solution. No production of indol.
- (6) Growth on potato. No visible growth.
- (7) Growth on litmus-milk. No coagulation. Very slight production of acidity.
- (8) Two test solutions of Capaldi and Proskauer.
- (9) Reaction to typhoid serum.
- (10) Growth upon the typhoid differential medium of Hiss. Diffuse cloudiness with no production of gas.

The interest which attaches to this series of observations lies, as it seems to me, not so much in its relation to diagnosis as to disinfection and public health, for it has been found that four of the seven positive cases retained their bacilli in undiminished quantity up to the time of their departure from the hospital. Upon their discharge they were carefully instructed as to disinfection, and urged to send weekly specimens for further examination; but, as is usual, they have in most instances failed to do as directed. One specimen received ten days after departure still showed bacilli. In another the organisms had disappeared. I am, thus, not in a position to say how long typhoid bacilli may persist in the urine, but it is apparent that they remain long enough to be important factors in the starting of new epidemics. If it is proper to quarantine diphtheria patients until Klebs-Löffler bacilli can no longer be cultivated from the throat, it would certainly seem that typhoid convalescents, passing with every micturition pure cultures of the typhoid bacillus, should be subject to similar supervision.

Can anything be done to hasten the disappearance of the bacilli?

Upon this point my experience is confined to a single method of treatment applied to a single case. In this instance the bladder was washed out with antiseptic solutions. At first boracic acid was used in two-per-cent solution, but with little if any effect. Finally

corrosive sublimate (1 to 7,000) was employed, and the bacilli disappeared entirely, not to return for thirty days at least. It would seem, therefore, that, in antiseptic irrigation, we have a possible means for freeing permanently these cases of their dangerous character. Whether it is possible to accomplish the same end by the internal administration of salol and similar remedies must be determined by further observation.

In a single case I have been able to isolate the typhoid bacillus from the sputum, and that, too, upon each of three consecutive days. This patient, during a relapse, developed in one chest signs indicating either a pleuritic effusion or a pneumonia. The diagnosis being in doubt an exploratory puncture was made with negative result, and a condition of pneumonia thus made very probable. I have since wondered whether, in another similar case, the presence of typhoid bacilli in the sputum might not be used as an argument for the presence of a pneumonia as against a pleuritic effusion. The sputum in 15 cases of uncomplicated typhoid fever showed no bacilli.

The association of a pneumonia with the presence of the typhoid bacillus suggests, of course, the causation of the one by the other, but such a theory can become tenable only after much more extended study and observation.

Finally, I have to report the results of three observations made upon typhoid cadavers, to determine, if possible, the manner in which the typhoid bacillus, as so often happens, reaches and infects the gall-bladder. The most probable theory has been that of an ascending infection from the intestine through the bile-ducts, although the possibility of infection through the circulation could not be absolutely ruled out.

In these three cases cultivations were made upon Capaldi agar from the contents of the colon, ileum, jejunum, duodenum and gall-bladder, and with the following results:

In Case 1, although there was marked ulceration of the intestine, and although the clinical course and serum-reaction all indicated typhoid fever, not a typhoid bacillus could be cultivated from any organ.

In Case 2 the gall-bladder presented pure cultures of the typhoid bacillus; but the intestine, though showing typical typhoid ulceration, revealed no typhoid bacilli.

In Case 3 also there was a pure culture of the typhoid bacillus in the gall-bladder. Moreover, the duodenum and jejunum showed similar pure cultures, and it was not until the ileum was reached that colon bacilli began to appear at all.

The result in this third case seems to me quite remarkable, and to speak very strongly for the theory of ascending infection. Unfortunately no cultures were made from the gall-ducts, so that the chain of evidence is not absolutely complete. Moreover, there is, of course, the possibility that the infection was originally through the circulation, and that the bacilli in the intestine were, so to speak, excreted in the bile, or, perhaps, what is more probable, the gall-bladder was infected originally through the bile-duct by a few organisms which, after indefinite multiplication, descended again in large numbers into the intestine.

These observations, then, while proving nothing, strengthen, I think, the theory of ascending infection. This must be my only excuse for bringing them to your notice this evening.

DR. F. C. SHATTUCK: Dr. Richardson speaks of

certain special sources of error in connection with the Widal reaction. I would like to ask a little more minutely what those are.

DR. MARK W. RICHARDSON: I referred especially to the small clumps which sometimes appear with blood from patients surely not typhoid. Perhaps still more confusing are the reactions that take place just on the limit of time, so to speak. The limit is set at one-half hour with a dilution of 1 to 10. If one gets a reaction in three-quarters of an hour with 1 to 10, one hardly knows what to say, and it is necessary then to judge by the manner of clumping and by certain forms of motility or lack of motility which the experienced eye takes in, and the significance of which one not experienced would be unable to appreciate.

PURULENT GENERAL PERITONITIS FROM CARCINOMA OF HEAD OF THE APPENDIX.

DR. J. H. WRIGHT: I wish briefly to report a rare case which has come under my observation in the autopsy-room of the hospital. The case was one of general purulent peritonitis of obscure origin. The autopsy failed to reveal any definite starting-point of the peritonitis. The appendix had some adhesions about it, but no good evidence of perforation. As a matter of routine the appendix was hardened and sections made. As a result we found a small primary carcinoma of the head of the appendix which this photograph is designed to show. You see just at the junction of the tumor with the wall of the gut a perforation which undoubtedly was the starting-point for the peritonitis. The other photographs show the finer structure of the tumor and the infiltration of the muscular coat with the cancer cells.

This occurrence of a primary carcinoma of the appendix seems to be a very rare one. I have not exhausted the search of the literature, but in the textbooks there is no reference to the occurrence of primary carcinoma of the appendix. The character of the tumor was the usual one seen in the alimentary canal — adeno-carcinoma, the epithelial cells tending to arrange themselves into tubules.

I have also here several microscopic preparations which I would like to show after the meeting, namely, a preparation from a case of glanders and a preparation from a case of actinomycosis, both of which were admitted to the hospital during the past six months.

BRAIN SECTIONS.

DR. W. F. WHITNEY exhibited a series of sections of a brain with intra-cerebral hemorrhage, which had been prepared by Kaiserling's method.

(To be continued.)

THE DIAGNOSTIC AND THERAPEUTIC VALUE OF TUBERCULIN AND ITS DERIVATIVES.¹

BY A. C. KLEBS, M.D., CHICAGO, ILL., AND CITRONELLE, ALA.

(Concluded from No. 6, p. 123.)

As to the characteristics and the technique of the test, as such, I have already stated that the result depends very much on the preparation used. This fact has only recently been brought to general professional attention. Kásparek, Straus and others have, in opposition to earlier observers, noted the greater inten-

sity in action of tuberculin derived from cultures of the bacillus of human tuberculosis, as compared with that from cultures of the bacillus of aviary tuberculosis. This is of some importance, as a good deal of the obtainable tuberculin is produced from this latter source, which of course modifies the comparison of results. But not only is it true that the source from which we take the bacilli for the culture affects the quality of the tuberculin derived therefrom, but more especially do the age, the virulency of the culture and the relative quantity of bacilli and culture fluid, as well as the nature of the medium used, the degree of concentration after evaporation and the time during which the culture was exposed to heat affect also its quality. In order to have always a uniform preparation of tuberculin I have used exclusively a tuberculin prepared in the laboratory of Dr. Edwin Klebs. This preparation is obtained by slowly concentrating cultures of equal age, virulency and volume to one-tenth of their original quantity. The concentration is obtained by evaporation on the water-bath, but in variation of Koch's procedure — *in vacuo* at a low temperature. We adhere to this process of evaporation at a low temperature, because the resulting preparation, though in every respect as active as Koch's tuberculin, seems to produce less annoying by-effects. This result may, of course, be accidental; but the results in all cases in which we used it — and we use it as a test in nearly every case — seem to corroborate this statement, that the by-effects are less serious.

In using this preparation I make up a one-tenth-per-cent. or a one-per-cent. solution in sterile water — not finding any advantage in the normal salt solution — measuring the desired quantity with a graduated pipette and taking it up into a syringe from a sterilized watch-glass. The injection is made anywhere in the body, preferably where the skin is loose, so as to make it easier to give the injection deep in the subcutaneous tissue and not into the skin proper, as the injection on the skin often causes very painful infiltration around the point of puncture, which may be the source of an elevation of temperature and therefore disturb the reliability of the test.

Before any injection is given the uninfluenced type of temperature is ascertained (temperature every three hours) for at least four or five days. The injection is then made, preferably in the morning (temperature taken every hour or two hours). As initial dose (for diagnosis) I use in nearly every case 0.0005 (one-half of the one-tenth-per-cent. solution). Many cases, especially those with inconsiderable lesions, respond readily to this dose. If no result is obtained within twenty-four hours I give another injection, but not before four days after the first injection. The dose I generally use then is 0.001 (one-tenth of the one-per-cent. solution). If this is negative also, a week has to elapse before I make another injection of .005. If this be positive, I draw, generally, definite conclusions; if negative, and other general points induce any suspicion, I inject finally 0.01, but regard a positive result only as definite under certain circumstances; a negative one, of course, does not mean anything either way.

It is important now to consider what elevation of temperature is necessary to constitute a positive test. It is evident that temperatures of 102° F. and even 104° F., as we can observe them, are sufficient to make the test positive; but as it is not our intention

¹ Paper read before the Boston Society for Medical Improvement, December 27, 1897.

to induce temperatures of such height, which certainly are not of indifference to the subject, we have to look out for other criterions. We can say that it is not alone the height of the temperature elevation which is a conclusive proof, but more so the character of the curve the temperature describes in the twenty-four to thirty-six hours following the injection. Here it has to be noted that very often, I believe in the majority of cases, the temperature does not rise within a few hours after injection, but remains nearly normal throughout the whole day, showing typical elevation on the next day after twenty, twenty-four or even thirty hours. The fact that such delayed reaction occurs is worth noting. I once saw the patient of a colleague, to whom we had given a second test injection in the morning, call at the physician's house late in the evening to report with delight his normal temperature. The colleague was much in favor of abandoning the suspicion of tuberculosis on this evidence, but the high elevation of temperature on the next morning renewed his attention.

The curve described by the temperature at the time of the febrile reaction usually shows a steep ascent, especially when setting in twelve hours or more after the injection. It stays at the highest point for a short time only (two or three hours are the exceptions) and descends critically. The descent by crisis is quite characteristic, and but few cases show an exceptional course. Rarely the critical descent reaches the normal line or even goes below it. Nearly always the temperature remains slightly elevated, and the temperature curve of the next day shows signs of disturbance. The temperature curve merits our closest attention; and the careful observation of it, especially the comparison of the curve one week before the injection with that after it, gives us more valuable information than the mere statement of a certain height reached, and the comparing it with the usually adopted standard of normal temperature. In general the temperature rise of two degrees Fahrenheit is necessary in order to conclude that the result of the reaction is positive,—at least I have found it so, and I always use the preparation referred to, excluding as far as possible any other reason for this elevation.

Taking into consideration all these facts, and remembering well that by no means can we regard the tuberculin test as an absolute diagnostic criterion, nor that its action is entirely specific, we have nevertheless to look at it as a most valuable contribution to our diagnostic outfit. The technique is extremely simple, and there is no reason why it should not become as necessary a part of every physician's diagnostic appliances as the stethoscope, speculum and microscope; and more than that, just as free examinations of sputum are made in order to obtain the early diagnosis of the disease in the poor, free stations should be established for the application of the test in large cities. The early diagnosis of phthisis has everywhere been recognized as of the highest importance, and yet this valuable test in the lapse of seven years has reached the full appreciation of veterinarians and cattle-growers only, and this after and with hard fighting. It is astonishing how few physicians recognize its full value. When, seven years ago, Koch's celebrated words that "phthisis in the beginning can be cured with certainty by the remedy," were repeated in the different parts of the world, the closest attention was paid everywhere to the investigations following, and every

one tried to contribute his share to the statistics which accumulated in enormous numbers. But after the storm was over and the "certain cure" remained still to be found, the whole subject was dropped, and even the diagnostic value forgotten. And, besides, diagnostic improvements in general do not find their way as easily as "sure cures"—even the microscope is still a *terra incognita* to so many. Furthermore, there seems sometimes to be an aversion to the early pronouncing of the diagnosis of tuberculosis—personal considerations, and wrongly applied delicacy are often to be blamed for it. Nevertheless, there has been much progress in this line, and tuberculosis is no longer regarded so universally as the hopeless scourge of suffering humanity.

Now there are better-founded objections to the general introduction of tuberculin as a diagnostic test of human tuberculosis and these are chiefly its alleged danger to the patient. The anatomical investigations which induced the "tuberculin Katzenjammer" showed clearly that direct harm was often done by the injection, the possibility of mobilization and dissemination of the bacilli, produced by the activity of the reactive changes have been clearly demonstrated by careful observers (Virchow and others). But we have to remember that very high doses were used at that time—doses which are in no way necessary for mere diagnosis. The *small* doses which we use for diagnosis are perfectly harmless; and I have, in accordance with the experience of others, never seen any danger resulting from them. We regard generally .02 as the maximum dose which can be injected safely; still we would not begin the test with this dose, but always start with doses of decimilligrammes. In the literature on the subject we find great differences in the opinions about the needful dose. As already said, this is probably due to differences in the preparations employed. So, for instance, Grasset and Vedel (Montpellier) who use .0002 or .0003 for the first injection, regard .0005 as conclusive; Troudeau's highest dose is .003, Straus regards .01 as giving a reliable test, while Maragliano gives even higher doses.

I have dwelt at some length on the diagnostic value of the preparation, because that is by far the most important part of its usefulness. The diagnosis of early phthisis will always remain the first condition for its successful treatment. Whatever specific may still be discovered, its application will then only have true value when applied to those cases which have no extensive and constitutional changes, which by antitoxic or antibacteriological procedures alone cannot be overcome, and which are again and again the source of new infections.

Koch's claim that the early cases of tuberculosis can be cured with certainty, had no scientific basis at all, nor have any proofs been given of it since that time. We can attain with repeated injections of tuberculin a certain immunity against this preparation itself. But although this process of immunization is often accompanied by a remarkable general and symptomatic improvement it does not produce the definite arrest of the disease. Tuberculin-immunity does therefore by no means signify immunity to tuberculosis. Tuberculin represents a part of the toxins contained in the bodies of the bacilli and in the culture fluid, and this is an indefinite modification. This is sufficient reason to make the crude tuberculin unfit for the purpose of immunization, but there are more practical reasons also:

its high toxicity especially forbids its prolonged use even in weak doses. There has been recently a tendency to attribute good results to its action when used in these weak doses, which do not rise to objectionable by-effects. I have found that doses of even decimilligrammes, when given for a long period, without causing any marked reaction, seem to have a decidedly objectionable effect on the circulatory and uropoetic system, a marked albuminuria having been observed in almost every case. These are signs that the preparation, even in small doses, has not an indifferent action. Experience teaches that in the treatment of tuberculosis the Hippocratic principle "not to do any harm" has to be strictly adhered to; and as pathological observations have undoubtedly shown that very serious damage may be done by the prolonged use of it, it is necessary to abandon it, at least in its original form. As to the small doses which warrant an adherence to the *nil nocere* principle, there are no evidences that they give final and definite results.

The question as to how we may explain improvements after the use of such doses of tuberculin has not yet been satisfactorily answered. The theory of its producing necrosis in the tubercular tissue and in this way helping to eliminate the bacilli is correct, but does not cover all possibilities. We see sometimes, in lupus, after certain doses (small), a local reaction without general symptoms or fever, but this does not occur often enough to warrant us in drawing similar conclusions on the same results in pulmonary lesions. Its most probable method of action is by gradual immunization, by transformation of the toxins into antitoxins in the body, or by the stimulation of such antitoxic qualities, naturally in the organism.

Koch's new theory that his old tuberculin or his T. O. conveys only toxin immunity, while T. R. produces bacterial immunity, may be correct as far as T. O. is concerned, but does not hold for the old tuberculin, which contains the active principles of the culture in changed form (by heat). We have therefore adhered to the method of concentration *in vacuo*, which preserves to a certain extent the normal entity of the bacillus and its culture. Koch's newest method of preparing his tuberculin excludes heat entirely and employs for the total extraction of the active principles of the bacillus (without the culture fluid) physical means only. The method as used by him, the triturating of the bacilli in a mortar, cannot possibly be carried out aseptically, hence the unanimous reports of frequent contamination of this preparation by other bacteria. The larger the quantities produced by this method, the greater are the chances of such contamination. I have made experiments with T. R. which was not contaminated and found it to give much more violent reactions than the crude tuberculin. I would therefore attempt to use it even less than the old tuberculin.

Another method of preparing tuberculin, and at the same time preserving the chemical integrity of the culture, has been carried out, closely imitating Buchner's procedure of isolation of the active substances contained in yeast (zymasis) by hydraulic pressure. A contamination can be excluded more easily by this method and the preparation derived by it seems to offer similar properties to Koch's new tuberculin. Nevertheless the fact remains that in all the preparations so derived directly from the bacillus, there are contained bodies of unknown chemical constitution which, even in extremely small doses, have a most

deleterious effect on the human economy. They also seem to favor the mobilization and dissemination of the bacilli.

Edwin Klebs has very carefully studied the different bodies which he could isolate by chemical means from the bacillus and its culture soil, and has found two groups chiefly of albuminoses, whose physiological action shows striking differences. One has a marked effect on the heart and the vaso-motor system, similar to that of certain alkaloids, while the other seems to represent the curative properties, which he regards as being anti-bacterial. Koch admits, also, in his newest publication, the presence of anti-bacterial properties in the bodies of the bacilli, a fact which he has always denied heretofore, and which was for seven years upheld by E. Klebs in opposition to the discoverer of tuberculin. By certain alkaloid reagents Klebs was able to precipitate those substances which have only toxic properties, and he arrived in this way at an albuminoid body which is almost free from such toxic admixtures and seems to develop curative changes without disagreeable or deleterious by-effects. I have seen the animals which he has treated with this substance, which he calls tuberculocidin, and there is no doubt that they show evident signs of arrested tuberculosis. It is to be wished that these experiments may be repeated by other observers.

I have been using tuberculocidin on a great number of cases, but do not think that I am in a proper position to speak either favorably or unfavorably of it. In all the cases treated we have carried out rigid measures of a hygienic and dietetic nature, with all the important details of a systematic treatment, under direct supervision, in our institution in Citronelle, where there are favorable climatic conditions. We know that these measures alone have yielded most excellent results since the time Brehmer introduced them to us. As I hear, Dr. E. O. Otis has already addressed you on this subject and I am certain it has found an excellent defender in him. Nevertheless I cannot help feeling, that since using tuberculocidin I have had better results than before, especially when I note its action in advanced cases, in which all other methods are powerless.

The great difficulty in judging of the value of any remedy in tuberculosis is the almost absolute impossibility of obtaining reliable statistics. The prolonged course of the disease is probably the chief difficulty, for after the first improvement the cases treated escape further observation; and so many cases reported as cured have soon after the report taken a "heavenly course," we make it a rule not to pronounce any case cured before at least two years have elapsed, and then only with certain limitations and instructions. Statistics covering a term of years below this limit have no conclusive value whatever, they serve only as a guide for a modification of our method beside showing what has proved to be reliable in past experience. Another obstacle to reliable statistics is the present classification of the cases in stages, referring to the probable underlying pathological lesions and their extent. This is most unsatisfactory, but it is difficult to see how a change for the better can be made. Perhaps the further development of the tuberculin test promises a solution.

If tuberculin did not prove itself to be what its discoverer claimed for it, it has certainly furthered the cause of the investigation of tuberculosis in general,

and this has been one of the most neglected subjects of internal medicine. It is to be hoped that the development of this subject will be of still greater help in the fight against humanity's bitterest foe. Tuberculin has certainly already helped in the prevention of the disease; and this is much. As to those methods of treatment which are easily accessible to everybody, and which need only more general attention and energetic elaboration, I mean the hygienic, dietetic, and especially the institutional methods of treatment,—they will lose none of their value by the discovery of the long-looked-for specific. On the contrary, just as we need laboratories in which these questions may be worked out scientifically, so also we need institutions where the results obtained may be applied correctly, where accurate ideas about the disease may be taught, and where measures may be carried out beneficial both to the individuals treated and to the many with whom they may come in contact later. Only the collaboration of these two factors will assure the best results.

Summarizing our conclusions on tuberculin, we may say:

(1) That tuberculin is a most valuable aid in the diagnosis of early human tuberculosis, with due observation of limitations.

(2) That there is no danger in its application as a diagnostic test.

(3) That a tuberculin prepared always after the same method and standardized by previous animal tests should be used in order to insure uniformity of results.

(4) That the therapeutic value of the crude tuberculin is limited by its injurious by-effects.

(5) That the method of preparing the new tuberculin of Koch makes it impossible to exclude contamination with other bacteria and therefore renders it dangerous for *therapeutic* purposes.

(6) That also a non-contaminated preparation of new tuberculin offers the same and even greater dangers in its application as a *remedy*.

(7) That by elimination of certain toxic substances from any of the tuberculin preparations (or perhaps by their passage through an animal body), a preparation (tuberculocidin) can be obtained, curative properties of which can be demonstrated in animal experiments, and which seems to influence beneficially early cases of pulmonary tuberculosis.

(8) That we have no remedy and probably never will have a remedy of absolute certainty in tuberculosis in its different stages; and that the eradication of the disease can be successfully attempted only by the united efforts of the different communities; by rigidly enforced methods of prevention; by isolation of already infected cases in well-directed special institutions and by the general education of the public on the subject—in one word, by a sincere fight, like the one now so successfully undertaken in this State of Massachusetts.

THE EDITOR OF THE "BRITISH MEDICAL JOURNAL."—The council of the British Medical Association, at a meeting held January 19th, unanimously elected Dr. Dawson Williams editor of that paper. Dr. Williams has been assistant editor for the past seventeen years, and had full editorial charge during Mr. Hart's absence.

EYE-STRAIN.¹

BY FREDERICK C. CHENEY, M.D.

THE importance of eye-strain as an etiological factor in the various forms of functional headache is now so well recognized, both by the medical profession and laity, that I shall refer to this subject but briefly. An ocular headache is usually accompanied by more or less pain in the eyes, although it is often entirely absent, and the patient can read or sew for hours without discomfort. The sight may be defective, though in a large number of cases it is normal or practically so—for distance and near. There may be intolerance of light, increased lachrymation, redness of the eyeballs or lids, or these symptoms may be entirely absent. In other words, the fact that the eyes seem perfectly well to the patient and appear perfectly normal to an observer does not exclude eye-strain as a possible cause of the trouble. In regard to the situation of the headache: it is most often frontal or occipital, but it can be general or localized in any part of the head, and vary in character from a dull pain to a neuralgia of the greatest intensity. It is sometimes accompanied by nausea and vomiting, though there may be no stomach disturbance whatever. It may begin in the morning and wear off during the day, or begin late in the day, gradually increase in severity and finally be relieved by a night's sleep. It may occur daily or at irregular intervals, or assume more or less of a periodic character. In fact, any case of recurrent headache, not of organic or toxic origin, may be ocular, and probably the larger proportion is.

I wish especially, in this paper, to call attention to two or three other conditions that are dependent, to a greater or less degree, upon eye-strain.

Vertigo arises, of course, from various causes, and is not infrequently a symptom of serious organic disease. There are many cases, however, that are of ocular origin. At times it is associated with asthenopia and headache, but it is often met with in individuals who have little or no pain in the head and comparatively little discomfort in using the eyes. It may occur at any age, but in my experience is more frequent during the latter half of middle life, and is then apt to be regarded by the patient as a forerunner of apoplexy. The attack is often of an extremely mild character, causing the patient but momentary discomfort, while in other cases it lasts for a number of minutes and is of sufficient severity to necessitate sitting or lying down. A mild feeling of dizziness frequently accompanied by slight nausea and lasting for hours is another form of the trouble, and being generally associated with prolonged use of the eyes, its origin is more often recognized by the patient. In regard to frequency, there may be a number of attacks during the day, or they may be separated by intervals of days or even weeks.

Drowsiness, as a result of eye-strain, is not very generally recognized, or, if so, is not regarded as of sufficient importance to demand serious attention. Preceding sleep, it is, of course, an agreeable physiological condition. Occurring during the day, or in the early evening, it is an annoyance, and at times an extremely irritating one. To the average individual, it is of no great consequence: he gets sleepy when he tries to read in the evening, concludes that he has

¹ Read at the Clinical Section of the Suffolk District Medical Society, November 17, 1897.

worked too hard or eaten too much, as he often has, and goes to bed. If the drowsiness happens to be associated with pain in the eyes, or headache, an oculist will probably be consulted, and it will disappear after the eye defect has been corrected.

I was consulted a few years ago by a minister whose only symptom of eye-strain was extreme drowsiness on attempting to write his sermons. There was no pain in the eye or head, and he could see well enough in a good light. He was forty-five years of age, and had come to the conclusion that the trouble resulted from an effort in using the eyes, which proved to be the case. Another patient, a bookkeeper, who suffered still greater annoyance from this symptom, was seen last year. There was some headache and asthenopia, but his especial complaint was of feeling tired and sleepy most of the time. He often found it almost impossible, even during the morning hours, to keep awake when at work on his books. He had taken a vacation, but the trouble began again when he returned to his work. An examination showed a considerable degree of astigmatism, and correcting glasses were prescribed for constant use. He reported three or four weeks later that the drowsiness had almost entirely disappeared and that he was feeling much better generally. These two cases are not exceptional, and I have reported them simply to illustrate the degree of annoyance that may sometimes arise from this symptom.

Every practitioner is familiar with the patient who complains of feeling mean and played out most of the time, but has nothing especial the matter with him. He gets up feeling tired, and is glad when night comes. He sometimes improves under medical treatment, but is often overworked and needs a rest. Most of these patients get better, and an occasional bracing up keeps them in running order. Some of them feel well only occasionally; they go through life tired, and seem intended for a life of leisure rather than for hard work. Others break down and have "nervous prostration." All this misery cannot, of course, be attributed to eye-strain, but it is undoubtedly a fact (and one becoming more generally recognized) that many of these cases gain faster, and are less liable to "break down" in the future, if an existing eye-strain is relieved. With the class that may be called *eye-laborers*—students, bookkeepers, sewing women and the like—the ciliary is probably the hardest worked muscle in the body, even if the eye is normal. If, in addition, this muscle is called upon to correct hypermetropia or astigmatism, it is not surprising that the added strain is often the last straw in breaking down the overworked man or woman.

PROOF-READERS' MISTAKES—"Among the sickness of the plague in India are a colony of monkeys, near Hurdwar, and the authorities are now busily engaged in trapping and isolating deceased animals."—*Medical Press and Circular*.

Trapping would seem to be an unnecessarily difficult method of catching "deceased" animals. Under the heading, "A Bloodthirsty Physician," the same journal notes the following misprint: "Our attention is called to an advertisement of Aseptolin-Edson, which is appearing in the medical journals, containing the startling statement: 'Out of a number of cases of consumption treated therewith, only one proved unsatisfactory. Aseptolin has far surpassed our most sanguinary expectations.'"—

Clinical Department.

TWO CASES OF ABSCESS OF THE LIVER.¹

BY HENRY JACKSON, M.D.,
Assistant Visiting Physician, Boston City Hospital.

CASE I. Geo. McK., twenty-one, single, suffering with multiple small abscesses in the liver, entered my service on July 24th. The previous history was negative except that three years before his entrance to the hospital he was confined to bed by an acute appendicitis. At this time he was in Providence; according to the statement of the patient there was a tumor in the region of the appendix, with severe abdominal pain. No operation was performed. The pain lasted about one week, but the patient was confined to his bed for four weeks. Since then his health has been good.

For two weeks before entrance to the hospital his appetite was poor; he had headache and at times vertigo; there was also some palpitation and distress in the region of the heart. He continued at his work as a surveyor on the Boston & Albany Railroad at Newton until four days before entrance to the hospital; then after a hard day's work he had severe pain in the right iliac region which caused him to stoop forward when standing; nausea and vomiting soon followed. Two days later there was a chill followed by sweating, severe headache and delirium; the next day several chills, fever, vomiting and a good deal of pain in the right iliac region. The bowels were constipated.

Physical Examination.—Expression is somewhat anxious. Mind perfectly clear. Some tenderness in the back of the neck, a symptom noted as cerebrospinal meningitis was considered as possible in that at the time there were several cases of this disease in the hospital. No enlargement of the heart; at the base a soft musical murmur heard over the pulmonic area. Lungs, liver, spleen, not abnormal. There was general abdominal tenderness, most marked in the right iliac region, where gurgling was felt; no rose-spots.

Examination of the blood showed no plasmodia malarie. Leucocytes, 7,800.

July 26th. No change in general condition. A positive Widal reaction was reported. I consider that this was probably an error due to some fault in the technique, as several subsequent examinations gave a negative result.

July 27th. Leucocytes, 8,000. Quinine was given, 20 grains after the temperature fell a degree and a half. The quinine produced no effect upon the fever or the chills.

July 30th. Mental condition bright. No complaint was made of abdominal tenderness. The spleen was found to be somewhat enlarged. No enlargement of the heart. There was some tenderness in the right side of the abdomen, but there was not sharply localized tenderness at McBurney's point. There was no rigidity of the muscles of the right side of the abdomen, and the legs were fully extended without causing pain. Severe chills recurred daily towards five o'clock and on the 27th, 29th, 30th there was also a chill in the morning. Leucocytes, 16,800.

July 31st. Leucocytes, 23,000. Slight jaundice appeared to-day.

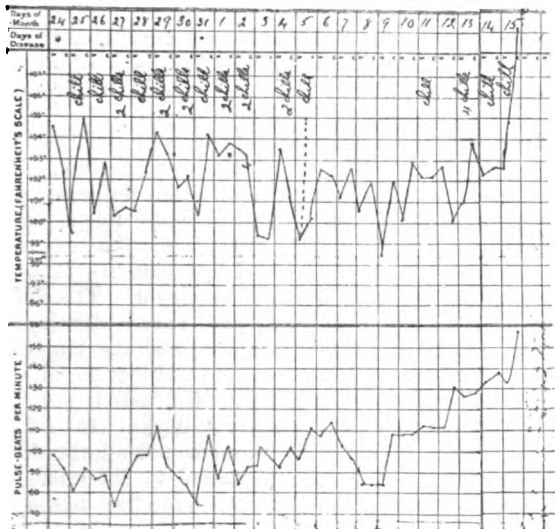
August 1st. Leucocytes, 33,000.

Up to August 5th there was a gradual loss of flesh

¹ Read at the Clinical Section of the Suffolk District Medical Society November 17, 1897.

and strength. The jaundice became more marked, and the liver extended from the 20th interspace to just below the ribs. There was slight dulness in the lower part of the right back.

After consultation with Dr. Munro it was decided to aspirate the liver, on the supposition that we had to deal with an abscess of the liver. He was etherized, and three punctures made in the region of the liver anteriorly, and one posteriorly. All were negative.



From August 5th to August 11th there were no chills, and his general condition improved a little.

August 12th. Leucocytes, 19,000.

August 13th. Again a chill. I saw him on the surgical side, and suggested as a possible diagnosis malignant endocarditis, considering this diagnosis probable in view of the negative result of the puncture made, and because a new murmur had appeared in the mitral area. The abdomen was a little tympanitic, and there was some tenderness in the region of the appendix.

August 15th. There was a violent chill at 10.30 P. M., his temperature rising to 109.5°. His death occurred three hours later. Up to the last his mental condition was bright, modified only by mild delirium at the time of the intense fever which followed the chill.

In arriving at a diagnosis we considered typhoid fever, appendicitis, malignant endocarditis, general tuberculosis, pyemia from some source not determined, and abscess of the liver.

Autopsy. Two hundred c. c. brownish fluid in the peritoneal cavity. Old adhesions between the great omentum and the right iliac wall. The appendix and cecum were bound down by old adhesions. The interior surface of the appendix was roughened and the walls thickened. Heart and lungs not abnormal. Spleen, 475 gm. Liver enlarged. On the anterior surface many small white patches, especially on the left lobe; on the under surface multiple abscesses. On section many abscesses found, especially in the left lobe. The portal vein was occluded by yellow adhesive thrombi and pus.

Anatomical Diagnosis.—Chronic appendicitis and chronic peri-appendicitis, multiple abscess of the liver, abscess of the mesenteric glands, acute splenic tumor.

The origin of the abscesses in the liver was obscure,

as there was found aside from the acute suppurative process in the liver only the chronic appendicitis and the acute inflammation of the mesenteric glands. The duration of the disease was seven weeks, four before entrance to the hospital and three in the hospital; so it is possible that the primary trouble may have been an exacerbation of the chronic appendicitis, especially as there was found in the appendix a little inspissated pus, though there was at the time of the autopsy no evidence of a recent acute inflammation.

CASE II. The history of this case is very incomplete and I report it only because of the interest attaching to the rare disease found, namely, amebic abscess of the liver.

On July 28th an old man was brought to the hospital in a state of marked collapse. He had walked into the Boston Dispensary, and was at once sent to the hospital by ambulance. He was pale, covered with a cold sweat; pulse small, intermittent and irregular. There was abdominal pain, and a history of obstinate constipation for eight days and no movement for five days. It was considered indiscreet to operate at once, and he was placed in bed and stimulants given.

I saw him in consultation with Dr. Munro the next day. In the right hypochondrium was a large, tense, hard mass, extending about four inches below the edge of the ribs. The liver dulness began in the fourth interspace. Over the lower right front a friction sound was heard. The diagnosis appeared to be between an enlarged liver and subphrenic abscess with depression of the liver.

At the autopsy there was found an enormous amebic abscess of the liver; amebæ were found. In the upper part of the colon were two chronic ulcers.

There was during life no history of a preceding dysentery. His wife said he had had good health up to the last four years, though he had been subject to attacks of obstipation.

CANCEROUS STENOSIS OF THE PYLORUS.¹

BY G. LIEBMANN, M.D.

THE case I wish to report is that of a man forty-three years of age who had always been well up to the time of the advent of his fatal sickness, a little over a year ago; a man who did not offer symptoms of emaciation—he was thin before—but he had not a cachectic appearance at all. His appetite was good from the start of his sickness until he died. That was one of the most peculiar phases in this case, that his appetite was good from the start. He was taken about one year ago with what appeared to be paroxysms of spasmodic pains or cramps in the epigastrium and in the right hypochondrium. At first it was thought the paroxysms indicated gall-stones. The liver was enlarged and the region of the gall-bladder somewhat tender. These paroxysms soon lapsed into continuous suffering so that the man could not sleep and could not enjoy life at all unless under an anodyne; a small quantity of an anodyne would relieve him. His appetite, as stated, was good; tongue was clean; and the examination of the contents of the stomach showed that there was hydrochloric acid present in more or less normal quantities. The total acidity was at first 90, later 44. The pain complained

¹ Read at the Clinical Section of the Suffolk District Medical Society, November 17, 1894.

of in the epigastrium could not be localized to one point as in ulcer. The man was sitting continually supporting his epigastrium so much was his suffering. After a test-supper the stomach never was found empty in the morning, and even after a fast of twenty-four to thirty hours his stomach was never empty. One characteristic was that the stomach was never clean, no matter how long the irrigation lasted. Under these circumstances I came to the diagnosis of pyloric stenosis, recommended the man to go to the Massachusetts Hospital, and suggested an operation for relief. In case it should be a malignant growth of the pylorus it would at least make him comfortable for the rest of his days, or in case it should be a benign thickening, an hypertrophy or hyperplasia, it might be expected that the man by the establishment of gastro-enterostomy might be saved entirely. Apparently the hospital physicians disagreed with me, and the patient was soon again discharged.

He came to me again with the same symptoms of stagnation and retention of food in his stomach, and his suffering increased. I treated him for a little while with intra-ventricular faradization, which relieved the pain for a few days, and also relieved the retention of chyme in the stomach. The washings showed for one week a better condition; there was not quite as much food retained as before, but this lasted only one week, and then there came grumous masses that seemed to indicate admixture of blood. His condition grew worse and worse, so that I gave him a letter to Dr. Einhorn, of New York, who agreed with me that there was a mechanical obstruction, and in so far dissented with me that he assumed the presence of a carcinoma, from the fact that he thought on palpation he felt a tumor; besides, on account of the liver being enlarged and a few of the inguinal glands being swollen, he became still more firm in that conclusion. I had inclined to the diagnosis of ulcer with cicatricial thickening, on account of the presence of the normal amount of hydrochloric acid and on account of the appetite (as mentioned before) being intact, a fact I never before noticed in any cancer, also on account of the absence of the thick fur and covering of the tongue generally found in cancer; and, furthermore, there were some other symptoms missing that do not occur to me now. In my practice I always found a great repugnance to meat in cases of cancer. This man liked to eat meat up to his last days; and in consideration of all these symptoms, with the high percentage of acid being present and no tumor being felt by myself, I had come to the diagnosis of ulcer. As the result showed, I was mistaken in that.

There was found, upon the operation being performed by Dr. Willy Meyer, of New York (in the German Hospital), a carcinoma involving the pylorus and also extending along the lesser curvature. The man died soon after the operation, I am sorry to say. I wrote to Dr. Einhorn about the cause of death, and he could only tell me that the operation was performed successfully. A communication was established between the stomach and the jejunum, but very likely there was heart failure, although the doctor wrote that the surgeon told him that an embolus in the brain might have been the cause of death. I want to bring this before the Society on account of the atypical course in this case of cancer. There was also ab-

A CASE OF ANTITOXIN POISONING.¹

BY JOHN LOVETT MORSE, A.M., M.D.,

Physician to Out-Patients at the City Hospital and at the Infants' Hospital, Boston.

A. B., male, thirty-two, and, as far as known, in good health, developed on April 28th, after a week of continuous exposure to diphtheria, a slight sore throat. The throat was generally reddened and rather dry. No culture was taken. As a precautionary measure he was given five cubic centimetres (500 units) of the Massachusetts State Board of Health antitoxin. It was injected with aseptic precautions and no local symptoms developed at any time at the seat of injection. The throat was entirely well by May 1st.

He remained in his usual health until 12.30 P. M., May 3d, when a slight urticaria was noticed. By 1.15 P. M. there was marked malaise, chilliness and vertigo. At 2.15 P. M. he fainted while telephoning. He was put to bed; and the body, face and extremities were found to be covered with large blotches of urticaria, so profuse as to be almost confluent. The chilliness and vertigo continued, and nausea developed. There was no headache, however, and the temperature was normal. There was no diminution of the urticaria until 6.00 A. M., May 4th, and it did not entirely disappear until several days later. The whole surface of the body was covered all the time, but the severity of the process varied in different portions at different times. At one time the face would be puffed up; at another the feet would swell enormously; at another the hands; and so on. The swelling was greater in the feet than elsewhere, however. The thighs were deep purple, and remained so for several days. The nausea continued, and by 6 P. M. vomiting came on, and continued uninterruptedly every fifteen or thirty minutes for twelve hours. The vomitus was watery, acid, and occasionally bile-tinged. During the night the uvula and pharynx became considerably edematous. This undoubtedly extended down the esophagus to the stomach, as swallowing was difficult and caused pain throughout the whole length of the esophagus. This was not relieved before the night of May 4th. The respiratory mucous membrane was fortunately not involved. The temperature remained normal, but the pulse was rapid and irregular. There was no diarrhea. There was, however, almost complete suppression of urine, only three or four ounces being passed in twenty-four hours. This was very thick and high-colored but did not contain albumin. At the end of the first day a general glandular enlargement had developed, which lasted for about ten days. Those in the groins were as large as walnuts. The patient was much prostrated, lost nearly ten pounds in weight, and was unable to resume his work for a week.

Two explanations for these unusual and severe symptoms naturally suggest themselves, namely, some idiosyncrasy on the part of the patient to horse serum, or something toxic in the serum. Neither explanation seems entirely satisfactory in the present instance, however; for the patient had two years previously taken seven cubic centimetres of Behring's antitoxin with no bad effects beyond a slight urticaria, lasting twelve hours, on the thirteenth day; and the serum from this horse, taken at the same time, was used in other cases

¹ Read at a meeting of the Clinical Section of the Suffolk District Medical Society, November 17, 1897.

without evil results. No one, however, was injected from the same bottle. It is barely possible that some fermentative process may have occurred in this bottle and have caused the trouble. It may be, however, that the patient was unusually susceptible at this particular time. At any rate this experience emphasizes the disagreeable, if not dangerous, symptoms which may occur as the result of injections of horse serum and suggests caution in the indiscriminate use of immunizing injections.

Reports of Societies.

CLINICAL SECTION OF THE SUFFOLK DISTRICT MEDICAL SOCIETY.

E. W. TAYLOR, M.D., SECRETARY.

REGULAR Meeting, Wednesday evening, November 17, 1897, Dr. F. W. WHITNEY in the chair.

Dr. F. E. CHENEY read a paper on

EYE-STRAIN.¹

Dr. J. L. MORSE reported

A CASE OF ANTITOXIN POISONING.²

Dr. H. JACKSON: Three years ago before Dr. McCollom had charge of the South Department I was on service in the contagious wards of the Boston City Hospital after the introduction of antitoxin. In a considerable proportion of cases there was some skin lesion of a varied form following the antitoxin. This rash appeared in some instances as late as three weeks though usually about a week to ten days after the injection of the antitoxin. The usual eruption seen was a simple urticaria, but several cases were seen in which there was a rash which it was extremely difficult to diagnose from a beginning scarlet fever: the rash was certainly scarlatiform. In children, and most of the cases of course were in children, there was considerable elevation of temperature, the temperature at times rising to 104° or 105° F., and in such instances the children appeared very sick, often more sick than they had with the original disease. I have not seen an extension of the disease into the buccal mucous membrane, and my chief impressions of the disease would be that it is multiform in its manifestations, usually accompanied by fever, and in children, at any rate, usually producing pretty severe general symptoms. I know of one case in an old lady in whom the symptoms were very severe. There was in that case a severe heart collapse, similar to the symptoms suggested by Dr. Morse's paper in the irregular pulse and rapid heart, and for a time her life was considered to be in considerable danger. She ultimately recovered. I know of no case at the City Hospital in which death has ensued as result of this poison. I think no satisfactory statistics have been collated to suggest what might be the origin of this rash; but I know it has been suggested in Germany that it was found only in the blood from certain horses. I remember reading that the blood of one horse was given up; they did not use it because so many cases of urticaria or skin lesion arose in the use of the blood from that animal. It does not seem to me very likely that it is due to some extraneous poison. I think the poisonous princi-

ple lies rather in the serum of the blood of the particular horse or in some entirely unknown quantity connected with the manufacture of the antitoxin in the blood of the horse rather than in some extraneous form of decomposition.

Dr. J. L. MORSE: In this case I wished to call attention especially to the very acute onset of the symptoms and to the fact that they were apparently entirely vaso-motor in origin.

Dr. H. JACKSON reported

TWO CASES OF ABSCESS OF THE LIVER.³

Dr. G. LEIBMANN read a paper on

CANCEROUS STENOSIS OF THE PYLORUS.⁴

MEDICAL SOCIETY OF THE STATE OF NEW YORK.

NINETY-SECOND ANNUAL MEETING, ALBANY, JANUARY 25-27, 1898.

FIRST DAY.—MORNING SESSION.

THE meeting was opened with a prayer by the Rev. CHARLES A. RICHMOND, of Albany.

The President, Dr. SENECA D. POWELL, then delivered his

INAUGURAL ADDRESS.

The affairs of the Society throughout the State were reported as prosperous and in the same excellent condition as in the past, the only shadow being the death of twelve members. The work of the State Board of Examiners was commended. During the year 862 candidates for license to practise medicine were examined, 627 being accepted and 235 rejected, an average of 22 per cent. The defective law in regard to the sale of poisons was touched upon, and it was recommended that the Society take some action in the matter. It was also recommended that no change be made in the method of electing the officers of the Society or in the place of meeting, that is, Albany.

The annual report of the Treasurer was read, showing a balance on hand of \$2,877.65.

The annual report of the Committee on Legislation followed, in which was detailed its work during the year. This consisted chiefly in opposing bills which would have been injurious to medical men had they been allowed to pass.

The annual report of the Regents' Office was then read. It was also stated that of the 862 applicants examined for license to practise, 545 were graduates of New York institutions, and that their examination papers were more satisfactory than those presented by graduates of medical colleges of other States. The zeal shown by the medical colleges of the State in elevating their standard was highly commended.

Dr. WENDELL C. PHILLIPS, of New York, read the first paper of the day, entitled

EAR MANIFESTATIONS IN GENERAL DISEASE,

in which he called attention to the fact that but little attention is given to ear symptoms accompanying the exanthemata and other debilitating constitutional diseases. Carious teeth and adenoid growths in the

¹ See page 153 of the Journal.

² See page 154 of the Journal.

³ See page 154 of the Journal.

⁴ See page 155 of the Journal.

pharynx were also given as common cause of middle-ear disease and consequent deafness.

DR. LUCIEN HOWE, of Buffalo, emphasized the importance of treating these ear symptoms early before they have become chronic.

DR. HOLT, of Portland, Me., also spoke in the same strain, and referred to ear manifestations occurring in the course of Bright's disease.

DR. JOHN O. ROE, of Rochester, then read a paper upon

CASES OF ACUTE NON-DIPHTHERITIC INFLAMMATION OF THE LARYNX REQUIRING THE PROLONGED RETENTION OF THE INTUBATION-TUBE.

The first case was that of a child, thirteen months old, who suffered from such severe dyspnea that the tube was retained for over six weeks. In a second case, a little girl aged three years, the tube was worn for nine weeks. In both cases bacteriological examination proved them to be non-diphtheritic.

DR. T. F. C. VAN ALLEN, of Albany, read a paper entitled

THE REPORT OF A CASE OF UNUSUAL CONTRACTION OF THE VISUAL FIELD AND DISORDER OF THE COLOR SENSE FOLLOWING AN INJURY.

The patient was a painter, twenty-two years of age, who had fallen from a scaffold, sustaining a dislocation of the right shoulder, fracture of the right humerus, and a cut on the head. There was no fracture of the skull. There was some swelling and ecchymosis of the eyelids after the injury, but vision was apparently normal. Some weeks later he discovered that the text became blurred when he attempted to read; but it was not until he went back to his work that he found he could not distinguish colors. Examination showed the visual field much contracted and color perception impaired. His perception of red was not far from normal, but he could not distinguish blue from green. Alcoholic and tobacco amblyopia could be excluded, and the condition was considered due to the concussion and nervous shock caused by the fall.

DR. C. B. HERRICK, of Troy, then read a paper entitled

THE RAILWAY SURGEON AND HIS WORK.

The author said that there are six thousand railway surgeons in the United States. That their existence is warranted was shown by the fact that more than forty thousand of the million of men employed on railroads are injured annually. The character of the injuries which the railway surgeon is called upon to treat differs from that of other wounds in that they are usually inflicted by enormous weights in motion and with tremendous crushing force. In cases where the upper extremity is concerned, the railway surgeon is conservative, but prolonged treatment in the effort to save a crushed lower extremity is considered unavoidable.

THE RIVALS OF THE PHYSICIAN IN PRACTICE

was the title of a paper read by REYNOLD W. WILCOX, M.D., of New York.

The counter-prescribing "doc" of the corner drug-store, the instrument-maker, the massage-operator, the attendant, the trained nurse, and the barber, mentioned as the rivals of the physician. The

veterinary surgeon was cited as the only individual who refuses to prescribe for a human being.

AFTERNOON SESSION.

DR. JOHN H. PRYOR, of Buffalo, read a paper entitled

WHAT SHALL THE STATE AND COUNTY DO FOR THE CONSUMPTIVE,

in which he advocated the establishment by the State of special hospitals for this class of patients. The fact was brought out that in the State of New York 18,000 persons die annually of consumption.

THE ADVANTAGES OF STATE CONTROL IN MEDICINE.

A paper on this subject was read by DR. WILLIAM WARREN POTTER, of Buffalo. The results accomplished under the present system were given as follows: (1) The establishment of a preliminary requirement which makes it necessary for the medical student to possess qualifications equal to those of a high school graduate; (2) The establishment of the four years' course in medical colleges; (3) The examination by the State of candidates to determine their right to obtain a license to practise medicine; and (4) the rejection of 22.68 per cent. of the candidates who have applied for the State license since September 1, 1891, at which time the law went into effect. The author also advocated a national clearing-house, in which the different States should be represented, to pass upon the diplomas of physicians who desire to leave one State to reside in another.

DR. R. C. M. PAGE, of New York, read a paper upon

ANEMIA.

The author stated that, as a rule, anemia is secondary to some other condition which causes a deficiency in the number of red blood-corpuscles, and differs from leukemia in that in the latter condition there is an increased number of white corpuscles associated with enlargement of the spleen. The term chlorosis should be restricted to the condition occurring in young girls with delayed menstruation, for in these cases there is often no anemia. Pernicious anemia is especially apt to occur in women between the ages of twenty and forty after repeated pregnancies. In this condition there is a diminution of the red corpuscles without increase of the white and no enlargement of the spleen. A diagnostic point is the temperature which reaches 100° or 101° F. Death is generally due to intercurrent disease. For simple anemia he advocated the administration of iron, iodide of potassium, and arsenic.

EXPERT MEDICAL TESTIMONY,

was the title of a paper read by DR. J. B. RANSOM, of Dannemora, in which he suggested that medical experts be appointed by the court, such experts being qualified for the purpose by an examination as to fitness by the board of regents.

DR. EVARTS M. MORRELL, of Yonkers, cautioned medical men against testifying in a line of work with which they are not familiar, and emphasized the fact that when they do give testimony they should charge a large fee.

DR. A. WALTER SUITER, of Herkimer, said that bills which had been framed in the past to regulate expert medical testimony had invariably failed be-

cause they were unconstitutional. He objected to the appointment of experts by the presiding judge, on the ground that judges are human and therefore apt to be partial.

DR. LANDON CARTER GRAY, of New York, also thought that it would be difficult for a judge to act impartially in appointing experts, although this might be guarded against by the board of regents furnishing a list from which such experts are to be selected. Any change from the present method would be met with opposition on the part of the legal profession and he feared nothing could be done without co-operation from that quarter.

DR. JOHN T. WHEELER, of Chatham, then read a paper on

THE COLD-WATER TREATMENT OF TYPHOID FEVER IN PRIVATE PRACTICE.

The author said that he had used sponging in these cases since 1875 in a series of 120 cases, only one of which was fatal. This mild measure was resorted to in preference to the cold bath, which is considered too heroic by many people. He never has employed antipyretics. In very weak patients a preliminary rubbing is given instead of whiskey. Hemorrhage is a contraindication to sponging; pneumonia does not necessarily contraindicate it. Friction alone often quiets the restlessness. Much can be left to the nurse, who has a better opportunity than the physician of watching the effect of treatment. It is important that treatment be instituted early.

DR. HENRY L. ELSNER, of Syracuse, followed with a paper entitled

THE VAGARIES AND WANDERINGS OF GALL-STONES, WITH CLINICAL REPORTS.

The author narrated several unique cases. In one, in which the symptoms seemed to indicate pyloric cancer, a gall-stone weighing 23 grammes was discharged, followed eleven days later by the discharge of a second one nearly as large as the first. In another case a stone escaped from the gall-bladder and was found in the retroperitoneal space back of the pancreas, where it had caused symptoms resembling those of cancer of the pancreas. In a third case 601 small stones were found in the gall-bladder after the patient had suffered from repeated attacks of biliary colic. Operation was advised in all cases in which the symptoms of gall-stones are persistent.

DR. EDWARD D. FISHER, of New York, then read a paper entitled

PARALYSIS, PROGNOSIS AND TREATMENT.

The subject was considered under the following headings: (1) cerebral, (2) spinal, (3) peripheral, and (4) muscular. The first form is due to meningeal or intracranial hemorrhage, thrombosis, tumors, injuries, etc., and is usually unilateral. Disease of the anterior horns of the spinal cord, hemorrhage, new growths, injuries, compression and spinal fracture were given as cause of the second variety. The third form, which is accompanied by marked sensory symptoms, is usually caused by some constitutional dyscrasia, as rheumatism, gout and lead-poisoning. The etiology of the fourth variety is not well understood, but the condition is supposed to be due to an hereditary developmental defect. The prognosis is not favorable except in the third form of the disease. Hydrotherapy,

massage and electricity are indicated, and sometimes give beneficial results.

EVENING SESSION.

PRACTICAL EXPOSITION OF THE X-RAY IN MEDICINE AND SURGERY.

Apparatus and technique were demonstrated in an interesting manner by DR. SAMUEL LLOYD, of New York.

DR. FRANCIS H. WILLIAMS, of Boston, then read a paper entitled

THE X-RAY IN MEDICINE.

The author gave his experience with the x-ray in medical cases, and stated that more definite information can be obtained by this means than by percussion and auscultation in diseases of the heart, such as dilatation and hypertrophy, and in diseases of the lung and pleura, particularly tuberculosis, emphysema, pleurisy and empyema. A case was narrated in which the progress of a tuberculous invasion of the lungs was clearly shown by the x-ray.

THE X-RAY IN SURGERY.

DR. ARTHUR L. FISK read a paper on this subject, which was illustrated by stereopticon views of skiagraphs of many complicated bone injuries.

THE X-RAY—CLINICAL EXPERIENCES.

DR. WILLIAM HAILES, Jr., of Albany, followed with a paper detailing his clinical experiences with the x-ray, and demonstrated improved methods in microscopic projection.

SECOND DAY.

DR. E. F. BRUSH, of Mount Vernon, read a paper entitled

THE HYGIENIC MANAGEMENT OF DAIRIES,

in which reference was made to the various ways in which milk becomes contaminated in the stable and dairy, all of which would be done away with if proper hygienic methods were employed.

DR. W. H. HEATH, of Buffalo, followed with a paper on

THE MUNICIPAL CONTROL OF MILK-SUPPLY IN CITIES AND VILLAGES.

The author spoke of the system employed in Buffalo in regard to supervision of the milk-supply, and strongly urged that the State Board of Health adopt a similar system and insist upon its enforcement in every city and village throughout the State. The necessity for inspection of dairies was emphasized.

DR. HERMAN E. HAYD, of Buffalo, read a paper entitled

SOME POINTS IN THE TECHNIQUE OF THE ALEXANDER OPERATION.

The operation which picks up the ligament at the external ring was advocated and the necessity emphasized of saving the knuckle of fat which presents at the external opening, as this is an important landmark. The end of the ligament is then cut off and the latter transfixed through a thick portion of the muscle, care being taken not to draw the suture too tight in approximating the pillars. He is opposed to the operation in which the canal is opened, as this favors the production of hernia.

DR. EDWIN B. CRAGIN, of New York, followed with a paper on

THE PRESENT STATUS OF VAGINAL OPERATIONS FOR DISEASE OF THE PELVIC ORGANS.

The vaginal operation was advocated in three classes of cases, namely, (1) pus cases in which the removal of the uterus and appendages is indicated, (2) cases in which the exudate indicates the necessity for drainage without removal of the uterus, and (3) cases of small fibro-myomata. The value of morcellation, the Mikulicz vaginal drain, and the use of ligatures were emphasized.

DR. W. E. FORD, of Utica, read a paper entitled
REMOTE CONSEQUENCES OF EXCESSIVE UTERINE HEMORRHAGE.

The fact was pointed out that in lacerations of the cervix which extend above the internal os, the loss of blood is apt to be large. The degeneration of the endometrium which follows keeps up the bleeding and, as a result, a neuritis is set up which is the beginning of the so-called neurasthenia uteri. In these cases trachelorrhaphy fails to cure the nervous symptoms, and amputation of the cervix should be performed. The blood-count in these patients shows that there is no true anemia present.

DR. J. RIDDLE GOFFE, of New York, presented a paper on

THE ANATOMY AND FUNCTION OF THE PELVIC FLOOR IN WOMEN, AND THE OPERATION FOR REPAIR OF INJURIES DUE TO PARTURITION.

The author stated his belief that the function of the perineum is entirely passive, and that it serves three purposes, namely, (1) it fills in a certain amount of anatomical space between the outlets of the two canals, the vagina and the rectum; (2) it gives attachment to the movable end of the levator ani muscle; and (3) it gets out of the way, or, more correctly, is drawn out of the way of the advancing head in parturition and of the fecal mass in defecation. All active movements of the pelvic floor is accompanied by the levator muscle, under which name the author includes all the muscular structures of the floor of the pelvis. This levator muscle was described as cone-shaped with a bony origin and a tendinous attachment, the bony origin being the entire circumference of the pelvis and its attachment the tendinous centre known as the perineal raphe. Lacerations of the pelvic floor are serious in proportion to the degree of impairment to the structure and functions of the levator ani muscle which they produce, and any operation for the repair of such lacerations must restore to this muscle its distal attachment. The following method was advocated: Beginning with the highest caruncule on either side and reaching the highest point of the rectocele, a triangular flap is removed; then, with the finger of the left hand in the rectum, the needle is inserted about one-fourth of an inch from the angle of the denudation, passes through the mucous membrane, sweeps out toward the side of the pelvis, and gradually curves toward the median line until it emerges near it and about an inch down the rectocele. It is then withdrawn and again inserted an eighth of an inch on the opposite side of the median line and swept back through the tissues in a reverse direction until it emerges upon the mucous membrane at a point equally distant from the angle of denudation

to correspond with the point of insertion. A second stitch is inserted a quarter of an inch farther down the edge of the mucous membrane and corresponding to the first suture. The two or three succeeding sutures similarly passed bring together in front of the rectocele the separated edges of the muscles and fascia, and the last is passed down around the entire circumference of the denuded surface. The suture material employed is silver wire. One of the advantages of the operation is that it is followed by but little pain, and the patients are confined to bed but a few days.

DR. W. GILL WYLIE, of New York, considered the Alexander operation an ideal one in selected cases, but thought it was often employed where it was not called for. Vaginal work gives as good results as does that done by the abdominal route. The speaker now employs clamps in the place of ligatures, believing that the vagina is left in a better condition when the former are used. He agreed with Dr. Goffe in regard to the function of the transversus perinei. He considered it a very active muscle which retracts and everts the mouth of the vagina when it is lacerated.

DR. ALBERT VANDER VEER, of Albany, was in favor of the Alexander operation in cases of movable retroversion, but thought it could often be avoided by palliative treatment. Cases in which vaginal work is done should be carefully selected. The speaker was one of the first to employ this method, having removed a fibroid through the vagina eighteen years ago. He heartily agreed with the views expressed by Dr. Ford in his paper.

DR. F. W. SEARS, of Syracuse, agreed with Dr. Goffe that lacerations of the perineum are usually caused by the passage of the shoulders.

DR. FORD said that he had been employing an operation very similar to that described by Dr. Goffe, and that he had obtained very good results.

DR. GEORGE M. EDEBOHLS, of New York, read a paper entitled

THE OTHER KIDNEY IN CONTEMPLATED NEPHRECTOMY.

The importance of determining the presence and condition of the other kidney when nephrectomy is contemplated was strongly urged by the author. The presence of a kidney can usually be ascertained by palpation alone; to determine its condition, cystoscopy and catheterization of the ureters may be employed. As a final resort, lumbar incision and exploration were advocated. This procedure was first practised by the author in 1894, and he has employed it in two additional cases since that time.

DR. BRISTOW said that in a large series of autopsies he had never met with a case of single kidney, although he had seen several in which one or both kidneys were situated below the brim of the pelvis and furnished with a double set of blood-vessels. He thought the condition of single kidney so rare as to make exploratory incision unjustifiable.

DR. WILLY MEYER, of New York, agreed with the author that all means should be employed to ascertain the condition of the other kidney. He recommended that suprapubic cystotomy be performed, if necessary, for this purpose.

DR. EDEBOHLS said that he knew of three cases in which only one kidney was present, as proved by autopsy.

(To be continued.)

Recent Literature.

An Epitome of the History of Medicine. By ROSWELL PARK, A.M., M.D., Professor of Surgery in the Medical Department of the University of Buffalo, etc. Illustrated with portraits and other engravings. One volume, royal octavo, pp. xiv, 348. Philadelphia, New York and Chicago: The F. A. Davis Company.

Washington is the only city in America containing the material needed for original research in medical history and bibliography; even the library of the Surgeon-General's office needs the care of ripe medical scholars after the arduous labors of Dr. Billings, who has so ably and energetically formed the "skeleton."

Dr. Park, no doubt, felt this when he began an "Epitome of the History of Medicine." It is hard to conceive how a greater number of interesting facts could be crowded into the same space; it is to be regretted that they are not more judiciously grouped and related. A list of the authorities consulted shows that they have been selected with too little regard to the results of modern scholarship in general or in medical history. Renouard's classifications are unfortunate at the best; Daremberg is a monument of learning distorted by national and other prejudices; Bouchut is beneath criticism; Baas is not a *good* compend even; Haeser is better in a later edition than in that used by Dr. Park, and then is not noted for infallibility; the remaining antiquated treasuries of facts need to be used with a much better conception of the philosophy of history than has been displayed by the writer if he wishes to furnish a good compend, a work, by the way, at present capable of rendering the greatest service to American medicine.

We miss, for instance, an account of the connection of the doctrines developed at Alexandria with the thought of the Middle Ages; Arabian and Jewish philosophy are mingled; and there is no clear statement of the developments of these philosophies from orthodox Mohammedanism and Judaism, nor of their influence upon the thought of Western Europe; Averroes particularly is singularly unappreciated; the "portrait," by the by, copied from one of Raphael's great allegorical paintings, is simply an attempt to realize a conception formed by a school of thought, with which the artist sympathized, of what the legendary "doubter" might look like. There is no satisfactory statement of the relation of medicine to the great movement of the renaissance; no explanation, in other words, is given why the supreme importance of Vesalius and his works was not realized and has never been till our day, in spite of the learning of Haller, Boerhaave and Albini. There is merely a slur at Paracelsus, in spite of the great critical studies of modern bibliographers and historians; the simple confidence in French writers, like Daremberg, upon this point is inexcusable.

The writer does not clearly set forth the course of scientific and philosophical thought during the seventeenth and eighteenth centuries; and the references to positive philosophy are not satisfactory. There is a confusion of material, a mingling of what concerns anatomy, physiology, surgery and practical medicine, to say nothing of botany and chemistry, these latter being handled in a very step-motherly fashion, which prevents any thing like a clear conception of the devel-

opment of medical science. The sketch of Fothergill and Lettson should, at least, have mentioned their interesting American relation; and it is probable that a mention of Cotton Mather and Winthrop would have followed a better knowledge of the evolution of our science in America.

Not a few statements need correction. For instance, Hans Sachs (born 1494, died 1576) could hardly have been a "business colleague" of Jacob Boehme (born 1575, died 1624); no doubt it was simply meant to state that both were shoemakers. The *lithograph* of Pinel could hardly have been an *eighteenth* century production, and most of the so-called "steel plates" are "copper plates." Vesalius described the heart as a muscle with considerable detail, so that "Steno did not first prove it to be such"; and Senac should have been mentioned for his epoch-making studies in this connection. The statement that the "Arabian school kept alive all the learning of the past and clarified rather than made it turbid" is questionable.

It is a pity that, at this day, the name of Dr. Beaumont should have been omitted; some time it will be recognized that his study of the "physiological action of the gastric juice" is the greatest single contribution which America has made to modern medicine. Dr. Charles Wells, mentioned so honorably by John Stuart Mill, the learned and industrious Dr. Thomas Cooper and a number of other American workers besides should have been duly remembered.

May we hope that the author, having gathered so much of real value, and being endowed, as he is, with so much liberality and candor, will, in a second edition, order his material so as to demonstrate the correctness of his estimate of the value of medical history.

Practical Pathology for Students and Physicians.

By ALDRED SCOTT WARTHIN, Ph.D., M.D., Instructor in Pathology, University of Michigan. Ann Arbor, Mich.: George Wahr. 1897.

This book shows that its author possesses a thorough practical acquaintance with its subject-matter.

It is nearly evenly divided into two parts, respectively devoted to Directions for Post-mortem Examinations and to Histological Technique.

The part on post-mortem work is very well written, and can be read with profit by pathologists.

The part on histological technique follows chiefly the plan of the well-known work of von Kahlen, and contains also useful hints for clinical examinations by laboratory methods.

The book will be found to be a very satisfactory manual for the pathological laboratory.

Manual of Gynecology By HENRY T. BYFORD, M.D.,

Professor of Gynecology and Clinical Gynecology in the College of Physicians and Surgeons of Chicago, etc. Second Edition. Pp. 596. 341 illustrations. Philadelphia: P. Blakiston, Son & Co. 1897.

The first edition of this work has already been reviewed in these pages, and of the second edition it is only necessary to say that carcinoma, sarcoma and cystic tumors each receive a separate "part" in this volume. "New parts on the anatomy of the pelvic organs and venereal diseases" have been added, and many of the chapters have been almost entirely rewritten.

A Manual of Medical Jurisprudence. By ALFRED SWAINE TAYLOR, M.D., F.R.S. Revised and edited by THOMAS STEVENSON, M.D., London, F.R.S., etc. Twelfth American, with citations and additions from twelfth English, edition, by CLARK BELL, LL.D., etc. Philadelphia: Lea Brothers & Co. 1897.

A new edition of Taylor's Medical Jurisprudence is always welcome. As is usual, those changes which appear in the English edition are distinctly in the line of improvement, and, while not adding appreciably to the size of the work, do add to its value.

In all, the present volume is some forty pages longer than its predecessor, largely made up by American notes; and it is unfortunate that it cannot be said that the value of the work is increased in proportion to its length. Especially is this true of the concluding chapter, entitled "Medico-Legal Surgery," in opening which the American editor says, "Medico-Legal Surgery should be considered under three separate and distinct heads: Military Surgery, Naval Surgery, and Railway Surgery." From our point of view it is hard to see why it should, or why either of the three should, be considered under the head of Medico-Legal Surgery.

It may be of interest to some to know of the organization of the Army Medical Department, the Medical Corps of the Navy, and of the National Association of Railway Surgeons. It is also of passing interest that the American editor is an officer, and reads a number of papers before the meetings of the Medico-Legal Society. A new edition of a work of this character is, however, hardly the place that one would think of going to for the information.

A Text-Book of Diseases of Women. By CHARLES B. PENROSE, M.D., Ph.D., Professor of Gynecology in the University of Pennsylvania. Pp. 528. Philadelphia: W. B. Saunders. 1897.

This admirable volume of a little over 500 pages is perhaps the best of the recent text-books for students. It is clear, concise, well-illustrated, and is, in effect, a thorough exposition of the present status of gynecological practice in America. It is rendered especially admirable for the use of students by the author's adoption of and thorough adhesion to the principle of stating clearly one good method of treating each disease and avoiding complex discussion of moot points. This plan always stamps a book strongly with the individuality of its author; but Dr. Penrose is to be congratulated upon the fact that he carefully avoids the eccentricity of recommending extreme views on the ground of personal bias. The book is one which is well worth a careful perusal by any teacher of this subject, and which can be unhesitatingly recommended to students.

Injuries and Diseases of the Ear. By MCLEOD YEARSLEY, F.R.C.S. London: The Rebman Publishing Co. 1897.

This collection of monographs will be of interest to all general practitioners as well as to students of otology; the different subjects are handled in a very practical manner and the treatment is more nearly up to date than is common in text-books on this subject. Indeed, while it varies somewhat from that in use in our vicinity, especially as to anesthesia and adenoid operations, yet, on the whole, the book may be thoroughly commended in almost every detail.

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IMAGINATION.

MEDICAL history is full of the effects of imagination. As we study critically the work of the pioneers in medicine we find everywhere a tendency to substitute for the facts of observation a fabric of ideas dependent, in great measure, upon their own subjective states. It is only with the growth of more exact scientific methods that we have come to subordinate such vagaries to the test of accurate observation and experience. Yet even now, were we as critical of ourselves as our descendants are likely to be of us, we should still note a strong tendency to the exercise of imagination in many of the details of our daily work as physicians. To what extent this tendency is prevalent is hardly to be recognized until we make a definite effort toward its study.

To banish the element of imagination absolutely from any walk in life would undoubtedly be unfortunate; but as scientific men we cannot be too careful in recognizing whither its indulgence may lead. Of interest and value, therefore, is an investigation now before us, directed to the end of determining with accuracy the scope of imagination in the observance of certain objects. This work has been ingeniously attempted by Dr. George B. Dearborn in a paper in the January number of the *American Journal of Psychology*.

The apparatus for the investigation was simple; it consisted of the figures formed by pressing gently with the fingers a drop of ink between two squares of paper, the blots thereby produced representing a great variety of design. These were conveniently arranged on uniform bits of paper for subsequent tests.

The subjects experimented on were, for the most part, students in the Harvard Psychological Laboratory and a certain number of professors and their wives, the average age being about thirty-five. Every subject was examined as to his or her early life, and information obtained as regards familiarity with various animal forms, fairy stories, mythology and the possible

habit of watching clouds and other natural forms as a pleasure of the imagination. Among the subjects were two poets and two artists, who, both in readiness and variety of response, stood well toward the top of those experimented upon.

A large number of the blot-cards were arranged in regular series. Each subject in turn was directed to look at the blot-card, right side up, turning neither the card nor the head. As soon as a consciousness of the first suggested image, even though it were vague, came into his mind, he was directed to react by a tap. The time of his reaction was then noted, and as concise a description as possible given of the general nature of the object as suggested by the ink-blot. None of the subjects had seen the blot before the time of the experiment. As would be expected, a great variety of replies to the general question, "What is it?" were handed in. The grand average of time in forming a conception of the object suggested by an ink-blot was 10.3 seconds, with naturally, enormous individual variations. Each subject was instructed to report the first object which the blot suggested to him in each of a hundred and twenty cases. The comparison of these object-images is of extreme interest, and gives one a definite idea of the great variation in the play of the imagination in different individuals of the same general culture. Some of the objects imagined with the time required for the conception to be formed are as follows:

	Seconds.
"Demon on a beast"	4.
"Monster's Head"	16.3
"Head of an Arab"	8.
"Running animal, frisking"	2.
"Girl in tall cap, seated"	4.
"Running pea-fowl, head on one side"	6.2
"Chimera"	11.5
"New style lady's bonnet"	70.
"Head of some one-eyed creature"	33.5
"Bat flying"	47.8
"Two shrimps"	20.
"Half of sweet-pea bloom"	3.5
"Snake coiled around a stick"	3.

Many other equally curious and interesting imaginings are noted in this altogether readable article. The writer concludes as follows:

"Why one subject should see in a blot a 'cabbage head' and the next an 'animal with his mouth open,' or why a professor should be reminded by a blot of 'half a sweet-pea blossom' and his wife of 'a snake coiled around a stick,' of course no one can at present pretend to explain. There is a temptation in such cases of association as these, to call the results the choice of chance; but this means too little — or too much. It is clear, that, as a general principle, the experience, and especially the early experience, of the subject, has important influence. For example, study of the records shows that subject 'H,' a purely domestic woman, is reminded most often of domestic objects; while subject 'O,' who is an artist and student of mythology, sees in the blots many picturesque and fanciful things. The difference in the imaginations of the country and city bred is clear. Altogether, there is evidence here that the laws of the reproductive imagination, still, for the most part hid in the neural paths, are substantial laws which may one day be found out entirely and reduced to words and to more or less of mathematical certainty of statement. Meanwhile it is something to establish, if possible, in a manner unmistakably demonstrable, the empirical conditions under which this 'faculty' of mind performs its marvellous combinations and effects, for the imagination is one of the most interesting as well as important phases of mentality.

"In particular would it be interesting to know to what degree, if at all, the fixed ideas, delusions and changed emotional conditions, of what the Germans term conveniently *der Wahn*, influence and subvert the reproductive imaginations of the persons who are the victims of these obsessions and delusions, fixed into their mental natures deep as life. Perhaps an attempt to answer these interesting inquiries may form the substance of another research, conducted with this same set of blots."

We certainly trust that this last suggestion may be carried out, for in such work we see psychology made practical, and an analysis offered of certain psychical phenomena which is of much value.

To the physician, whether he be engaged in the active practice of his profession or in working out its theoretical problems, such a study as the foregoing should convey at least a warning that wide differences of opinion are often dependent upon early experience and training, and that imagination, no doubt, in its true sense, is a much more potent influence in the determination of many of his ideas than he can possibly realize.

STATE MONOPOLY OF THE MANUFACTURE OF ALCOHOLIC BEVERAGES IN FRANCE.

THE question of the desirability of a State monopoly for the manufacture of alcoholic beverages having come up for discussion in France, an Extra-Parliamentary Commission was appointed to investigate the scientific and industrial questions involved. At the end of January, 1898, M. Duclaux, Director of the Pasteur Institute, presented the unanimous report of the sub-committee which had been considering the subject from a hygienic point of view.¹

The commission is convinced that alcohol *per se* is the chief offender in the harm arising from the use of distilled spirits, and that therefore the most important thing to be gained in the way of reform is, first and foremost, that a less quantity should be drunk, and, secondly, that its quality should be improved. And this latter the commission believes can be brought about just as well without the intervention of a government monopoly.

In regard to cordials with high flavors and made with essences, etc., the commission is most outspoken in their condemnation; and nothing, in their belief, can be done to make them innocuous. All the plans for monopoly which were presented for consideration included the making and sale of absinth and other *liqueurs*; and for this reason alone the commission could support none of them. Finally, the commission is convinced that all monopoly tends to increase the number of drinkers rather than diminish it, and concludes that from a hygienic point of view all attempts at monopoly are useless, for there can exist no such thing as hygienic alcohol, no matter how it be prepared or purified.

The conclusions reached by the Committee are as follows:

(1) Alcohol, when consumed in the form of wine, beer, cider or perry is a substance whose moderate usage

¹ Annales de l'Institut de Pasteur, January 25, 1898.

is without harm provided these beverages are properly prepared.

(2) No distilled alcoholic spirit is hygienic, and beyond a certain limit the purest alcohol is dangerous.

(3) The natural impurities which come from distillation add their own dangers to the dangers of the alcohol containing them.

(4) In the alcohols destined for consumption the harmful action of the impurities of the most poorly rectified spirits is less than the harmful action of the alcohol containing them.

(5) The danger is much greater with the essences, flavors, and artificial ingredients which are added to the alcohol to make the vermouths, bitters and absinths of commerce. The harmful action of these substances, even when the purest, augments in a large measure the harmful action of the alcohol containing them.

(6) There is no substance that can be used in the production of such *liqueurs* that is not dangerous to the habitual consumer.

(7) It is desirable, as regards distilled spirits, to make them as harmless as possible by securing their absolute purity, but the solution of the problem of alcoholism will not be found by so doing. The *liqueurs*, however, present such great dangers to the public health that it is necessary to try to restrain their use so far as possible. Also an attempt should be made to find ingredients to make them less harmful; but at present there are none known which are not harmful to the organs of the body.

(8) All reform ought to seek first of all to diminish the amount of alcohol consumed, and, secondly, to improve its quality.

MEDICAL NOTES.

TYPHOID FEVER is prevailing to an unusual extent in Jersey City, some forty cases having been reported in January.

THE ASSOCIATION OF AMERICAN ANATOMISTS. — The next meeting of this Association will be held in December, 1898, in New York City.

THE AMERICAN DERMATOLOGICAL ASSOCIATION. — The date of meeting of this Association has been changed to May 31st, June 1st and 2d.

A MEDICAL CANDIDATE FOR MAYOR OF PHILADELPHIA. — Dr. William Pepper has been mentioned as a candidate for the mayoralty of Philadelphia at the next election.

THE CITY HOSPITAL MEDICAL SOCIETY OF ST. LOUIS. — The Alumni of the City Hospital of St. Louis have organized a Medical Society, which meets on the first and third Thursdays of each month except July and August.

LEGACY TO THE PENNSYLVANIA HOSPITAL. — The Pennsylvania Hospital has been left the sum of \$50,000 by the will of Josephine M. Ayer of Lowell, Mass., died in Paris. If we mistake not, this Mrs.

Ayer is the widow of the Ayer of sarsaparilla notoriety, concerning whom, however, comment is unnecessary, in view of the munificence of his relict. — *Medical News*.

THE AMERICAN MEDICAL ASSOCIATION. — The Section on Materia Medica and Therapeutics of the American Medical Association publishes a very attractive programme for the meeting at Denver, Col., June 7-10, 1898.

THE MANUFACTURE OF THE NEW TUBERCULIN. — We are informed that the report that the manufacture of Tuberculin T. R. has been discontinued is without foundation. The fact that its distribution has been restricted probably gave origin to the rumor.

CHILD LIFE INSURANCE, A JUROR'S STATEMENT. — The following incident illustrating the methods of child life insurance agents is taken from an English paper:

At an inquest on a baby at Newington recently held, the coroner asked the witness if the child was insured.

Witness. — "Gracious me, no; it's only eleven days old!"

Coroner. — "That's nothing; some mothers insure their children before they are born."

Witness. — "Rather rough, isn't it?"

A Juror. — "That's quite right. I've known insurance agents who have had the tip to wait at people's door till the child was born."

PLAGUE IN BOMBAY. — The plague still rages in Bombay, the number of deaths for the week ending January 26th having been 834. At Sinner the attempts of the authorities to enforce isolation excited a riot, in the course of which an apothecary was killed and a constable wounded. The temporary hospitals were wrecked and the quarantine camp was set on fire. The mob was dispersed only after the police had fired into it.

CHRISTIAN SCIENCE AND THE LAW. — A Christian Science "doctor" was fined fifty dollars recently in a Kansas City police court for not reporting to the Board of Health a case of diphtheria in a family in which a ten-year-old child afterward died. The woman had administered Christian Science treatment to the child. The case was appealed, but the judgment of the trial tribunal was sustained. In the opinion delivered in affirmation of the judgment of the lower court, the judge said the methods of Christian Science in attempting to heal were frequently akin to murder. — *Medical Record*.

IMMUNITY TO THE STING OF BEES. — Dr. Langer, of Ruschowan, in Bohemia, stated at the Congress of German Naturalists and Physicians, according to the *Practitioner*, that he found that the majority of the bee-keepers in that district acquired a complete immunity to the stings of those insects, while some seemed to have enjoyed that immunity from the first, possibly by inheritance from immunized fathers. Of 153 whom he had questioned, 9 had always been insusceptible, 118 had acquired immunity, and 26 had not. So complete was it in some cases, that men, when intoxicated, had been stung in 50 to 100 places with less suffering than is felt by most persons from flea-bites. The poison he finds to be an animal alkaloid, and not, as is

commonly believed, a formic acid, and the best treatment a subcutaneous injection of a two to five per cent. solution of potassium permanganate, since the poison is destroyed by this salt in the proportion of one in twenty.

THE "OVERLAYING" OF INFANTS.—Every year in this country forty thousand children meet their death by being lain upon and thus suffocated. The great bulk of this annual slaughter is accomplished on Saturday and Sunday nights and in the holiday seasons. To interfere with freedom to overlay infants would be at present going farther than the British Parliament would dare to go, especially if the proposal were to conform the law here to that of Germany upon this subject. In Germany, a mother who has her young infant in bed with her commits an offence. A first offence is liable to a fine, a second offence to imprisonment. To be drunk and disorderly in Great Britain is an offence which is fined, but to be drunk and smother a baby is still a lawful act. The smothering is not murder, neither is it manslaughter, for that is to commit an unlawful act whereby some person comes by his death, and to be drunk is a lawful act, even to a suckling mother. — *English paper.*

BOSTON AND NEW ENGLAND.

ACUTE INFECTIOUS DISEASES IN BOSTON.—For the the week ending at noon, February 16, 1898, there were reported to the Board of Health, of Boston, the following numbers of cases of acute infectious disease: diphtheria 36, scarlet fever 16, measles 22, typhoid fever 6.

RETIREMENT OF MR. ENDICOTT.—Mr. William Endicott, Jr., has retired from the Board of Trustees of the Massachusetts General Hospital, after twenty-two years of service.

BOSTON FLOATING HOSPITAL.—The annual report of the Boston Floating Hospital shows that the total number of children taken on trips this year was 2,018; patients discharged well, 159; discharged improved, 549; discharged not improved, 50; died 4. Visitations were made to homes of patients to the number of 586. Twenty-five trips were made during the season. The report of the treasurer, Roger E. Tles-ton, shows receipts, \$10,895.78; expenses, \$10,724.05; balance, \$171.73.

• NEW YORK.

THE BOARD OF HEALTH AND TUBERCULOSIS.—Determined opposition to the Brush bill continues to manifest itself. The medical directors of the various life insurance companies in the city have united in a protest against its passage, in which they state that they feel that it would be a fatal mistake to exclude tuberculosis from the list of infectious diseases. The action of the Board of Health, they contend, in following up and trying to stamp out the possibility of this disease being communicated from person to person has proved so valuable during the last few years that it would be unfortunate to pass any bill which would pre-

vent the Board from continuing their labors in this direction. Protests against the bill have also been signed by a large number of the members of the County Medical Society and by the Medical Boards of the Bellevue Hospital and other hospitals, in addition to the New Hospital.

THE ADIRONDACK STATE PARK.—In January of last year Governor Black called the attention of the Legislature to the fact that in the proposed Adirondack State Park the State owned but 661,000 acres, out of a total of 2,800,000 acres. The Legislature accordingly appropriated \$1,000,000 and placed the expenditure of the fund in the hands of the Lieutenant-Governor, the State Engineer and the State Forestry Commissioner. This commission, designated as the Forest Preserve Board, has just presented its first report, which shows that the board has purchased within the confines of the Adirondack Park 250,117 acres, at a cost of \$921,699, making the State's total holdings 911,117 acres. Very nearly all the land so purchased is stated to be virgin forest land surrounding the lakes, the protection of which insures the water-supply of the Hudson Valley and the Erie Canal.

A PROFITABLE WINE TRADE.—In a recent lawsuit which has been brought against an alleged importer of Hungarian wines, on account of a business quarrel, the fact has been brought to light that a supposed high grade of Tokay wine which the "importer" sold for medicinal purposes was manufactured in New York at a trifling expense. The plaintiff in the suit claims that for the past five years he has supplied the defendant with this Tokay, which he manufactured out of alcohol, water, farina water, honey, tokay essence, citric acid, salicylic acid and gelatine. The cost of making six hundred gallons of "Tokay" wine, he states, is about \$75, or at the rate of six cents a bottle. The price of the wine to the public was two dollars a bottle.

Miscellany.

THE HUNT MEMORIAL BUILDING OF THE HARTFORD MEDICAL SOCIETY.

The Hartford Medical Society accepted and dedicated the Hunt Memorial Building on February 1st, in the presence of a large gathering of the medical fraternity and others. The building is attractive in the simplicity of its coloring and interior finish, and admirably adapted for the purposes for which it is intended.

A legacy of \$20,000 was bequeathed in 1893 by Mrs. Mary C. Hunt, widow of the late Dr. Ebenezer K. Hunt, of Hartford, for the construction of the building for the use of the Hartford Medical Society, as a memorial to her husband, in case the Medical Society should within two years have purchased a suitable site. A fund was started for the purchase of the site, and was made up to a sufficient sum by the contributions of members of the society and outside donors.

The building contains a meeting-room, a dispensary, a laboratory and anatomical and photograph rooms.

At the exercises Dr. Melancthon Stores made an

address upon the history of the Society and the building, and formally presented the building to the trustees. Dr. Gurdon W. Russell made the speech of acceptance for the trustees and reviewed the life of Dr. Hunt, who was active in establishing the Hartford Medical Society and Hartford Hospital, and who died in 1889 after a long life spent in the honorable practice of his profession, and the performance of many public duties. The oration of the evening was delivered by President Daniel C. Gilman, of Johns Hopkins University.

X-RAY DERMATITIS; SUIT FOR DAMAGES.

THE following letter to the *Journal of the American Medical Association* will be interesting to surgeons, as showing the dangers to which those who avail themselves of advanced methods in diagnosis and treatment are exposed.

PADUCAH, KY., February 2, 1898.

TO THE EDITOR:—In October, 1897, the undersigned was sued for malpractice in the sum of \$10,000 for subjecting a patient to the x-rays which produced a severe dermatitis, the plaintiff setting up the claim that the apparatus was carelessly used, and further that the means used was not yet sufficiently well understood to warrant its use for the purpose of locating foreign bodies, etc. The suit was ably contested and fortunately was decided in my favor, the court holding that in this as in other cases the physician was bound to use ordinary skill and judgment, and placed the case upon the same footing as chloroform anesthesia.

Knowing that there were several suits of this character in the courts, I thought perhaps it would be of some interest to report it, since I have as yet been unable to find that the subject has been previously passed upon by the courts.

Respectfully,

FRANK BOYD, M.D.

FOREIGN BODIES IN THE VAGINA.

THE Paris Correspondent of the *Medical Press and Circular* sends the following communication:

Nearly every medical man at one time or another has discovered, when examining a woman for fetid leucorrhœa, the presence of a pessary long forgotten in the vaginal cavity. M. Monod, of Bordeaux, relates some curious experiences he has made on the existence of various foreign bodies giving rise to the same symptoms. In one case he removed from a young woman a sponge which she alleged to have inserted some time previously, in order to suppress an abundant discharge. The sponge was already in a state of putrefaction, and came away in pieces. A rather elderly woman came to the hospital to be treated for fetid discharge. When the finger was passed up it perceived an ovoid foreign body, which, when extracted, proved to be a rosebud, in a good state of preservation. The patient pretended to know nothing about it.

Last spring he had occasion to examine a woman, aged sixty, of rather limited intelligence, for a double inguinal hernia. For a year before she suffered from vaginal discharge which was so fetid that she had to isolate herself from society. Suspecting the existence of a neoplasm, he chloroformed the patient in order to make a proper examination, and to operate, if necessary. When he introduced the hand into the vagina he felt a hard mass which seemed to be independent of the surrounding tissues. Passing a long forceps in he seized the body, and when he drew it he found it was a large cork. Renewing his explorations he successfully removed a thimble, a rag, a needle case, and finally a boot lace! The uterus was perfectly healthy.

Correspondence.

CLIMATE OF SOUTHERN CALIFORNIA.

(Concluded from No. 6, p. 143.)

THE oceans, the mountains and the deserts are the three great natural factors in producing the equable climate of Southern California. They unite in such a way as to produce an almost frostless thermal belt which extends for five hundred miles, north and south through the State. This follows the foot-hills of the Sierras; and throughout its whole extent oranges may be grown successfully, a sufficient test of the mildness of the climate. The earliest oranges shipped from California are grown at points 150 miles north of San Francisco, and, as everybody knows, thousands of carloads are grown in Southern California.

In Southeastern California there are 3,500 square miles of desert, comprising nearly one-fourth the entire area of the State. This desert country is bordered on the west by the Sierra Madre, the San Bernardino and the San Jacinto Mountains, an almost unbroken succession of ranges varying in height between 5,000 and 12,000 feet. Over all this wide expanse "there is aridity, a parched dryness and a dancing heat which oppresses all animal life when the sun is high and radiates and disappears soon after the sun has set, so that even the summer nights are cool, and in winter there is a freezing temperature." Lying between the western slopes of the mountains above mentioned and the Pacific Ocean are the fertile, cultivated valleys which make up the habitable portions of Southern California. The distance between the summits of the highest mountains and the coast is about 100 miles.

Through the action of the sun by day and the rapid cooling of the earth at night there is a constant succession of breezes back and forth between the ocean and the mountains. The hot air rising from the desert during the day moves in an upper current towards the ocean, and a cooler breeze flows eastward to take its place, although prevented from passing over the deserts by the mountain ranges. At night, the earth cools faster than the ocean; the hot air rises above it and a cool breeze flows from the mountains into the valleys. Hence, in summer, there is the delightful "trade-wind" flowing east and moderating the heat of the day and, at night, a cool mountain breeze, westward. In the winter there are similar changes, although the winds are not as regular and as marked as the summer trade-wind. Frost is usually a product of purely local conditions, due to the unusually rapid cooling of the earth and a colder night air than usual when there is a great deal of snow upon the mountains. The ocean currents modify the climate of Northern California more than that of the southern part of the State and assist in maintaining the equability of the "thermal belt."

It follows, from these natural conditions, that the summers are cooler and the winters are warmer at the coast than in the interior; but the relative humidity is much higher, and for this reason coast points are avoided by most invalids. Even in summer one cannot sit out of doors after nightfall at Los Angeles, although he may at many points inland. In fact, the long summer evenings, when the glare of the sun is gone and there is a deliciously cool but not chilling breeze from the mountains, are the pleasantest part of the year at interior points. Yet, throughout the year, the change in the air before nightfall and before sunrise is more noticeable away from the ocean than it is upon its shores.

As a rule, the conditions mentioned control absolutely the climate of Southern California. But occasionally storms or atmospheric disturbances, extending over wide "storm centres," break over the natural boundaries established by the deserts and the mountains and produce the "exceptional" weather which makes the transient tourist sceptical about the climate. The prolonged rain-

storms which occasionally come are instances of this; and a general frost like that of December, 1897, is another example. Two years earlier a freeze destroyed 1,500 carloads of oranges in a certain valley, while scarcely an orange was hurt in another valley fifteen miles distant and of about the same elevation above the sea. The latter was typical of the climate of Southern California, produced by local conditions such as may arise any winter; the former resulted from a wider influence, such as is very rarely strong enough to alter the equilibrium which is maintained between the climatic effects produced by the ocean and the deserts through the intervention of the mountains.

In summer the residents of the interior valleys go to the mountains or the coast, if possible. There are many beautiful camping-places among the mountains, at an altitude of 6,000 to 7,000 feet, where the weather is always cool. California affords unlimited opportunities for outdoor sports which while away the hot summer periods. As a rule, the maximum temperature in the shade is not above 90° and, in the dry atmosphere, that degree of heat may be borne with comfort. But, every summer, there are two or three periods of a week or ten days each when the mercury rises to 105°, occasionally to 110°, and these periods try the strongest. A continued residence in this climate is enervating. A common expression is that it "thins the blood." It renders people susceptible to cold and produces obscure nervous disorders. Many persons who seem to be "in a decline" from a long residence in the interior find their health completely restored by removal to the coast.

Persons suffering from asthma or rheumatism often find relief by living in the interior towns of Southern California. Consumptives rarely receive permanent benefit. They expect too much from the climate, and they come too late. Probably not more than one per cent. of those who come from the East for relief from consumption find a permanent cure. To secure the dessicated atmosphere recommended by physicians for this disease the patient must go to Indio, Palm Springs, or some other point on the desert side of the mountains. These places are lonesome; hotel accommodations are not first-class, and most patients waste other valuable time experimenting with various localities before they decide to try these.

The great virtue of the California climate is that one may be out of doors almost every day of the year, under proper precautions. Semi-invalids who are still strong enough to exercise out of doors have a good chance for rapid improvement if they will take care of themselves. But there is no positive medicinal virtue in the climate alone beyond that in pure air everywhere. In winter all persons in Southern California should wear warm woollen clothing, and should be well provided with outer wraps of different weights. They should wear a light overcoat when walking or sitting in the sun and a heavier one when riding. Invalids should always be within doors by 4.30 in the afternoon, and should remain in bed mornings until at least an hour after sunrise. They should abandon all intention of ever returning East to live, and should become permanent residents of Southern California. Sleeping in a room whose walls are partially made of canvas is very beneficial in many cases. It gives plenty of pure air without draughts. But all rooms should have ample facilities for heating.

With a knowledge of the peculiarities of the climate and a few simple precautions the health-seeker and the tourist will learn to enjoy the constant outdoor life; will understand the occasional disagreeable surprises in the way of severe weather; and will avoid the disappointment which overtakes those who think that in Southern California they may bask in eternal sunshine, without a drop of rain, a cloud in the sky, a snowflake, or a wintry wind—a childish dream from which many have been rudely awakened.

Very truly yours,

WM. M. TISDALE.

METEOROLOGICAL RECORD

For the week ending February 5th, in Boston, according to observations furnished by Sergeant J. W. Smith, of the United States Signal Corps:—

Date.	Barometer	Thermometer.			Relative humidity.		Direction of wind.		Velocity of wind.		We'th'r. °		Rainfall in inches.	
	Daily mean.	Daily mean.	Maximum.	Minimum.	8.00 A. M.	8.00 P. M.	Daily mean.	8.00 A. M.	8.00 P. M.	8.00 A. M.	8.00 P. M.	8.00 A. M.		8.00 P. M.
S...30	30.26	6	11	1	70	31	50	N.W.	N.	10	5	C.	C.	.45 .33
M...31	29.80	18	32	5	82	100	91	N.W.	N.E.	26	28	O.	N.	
T...1	29.33	21	32	10	94	72	85	N.W.	N.W.	24	24	N.	O.	
W...2	30.02	12	18	5	63	61	62	W.	S.W.	14	9	C.	O.	
Th...3	30.34	13	18	8	62	55	58	S.W.	W.	6	10	C.	C.	
F...4	30.62	17	28	6	53	60	56	S.W.	S.W.	6	10	C.	C.	
S...5	30.28	31	43	19	82	80	81	S.	S.	6	9	O.	O.	
P														

* O., cloudy; C., clear; F., fair; G., fog; H., haze; S., smoky; R., rain; T., threat; N., snow. † Indicates trace of rainfall. — Mean for week.

RECORD OF MORTALITY

FOR THE WEEK ENDING SATURDAY, FEBRUARY 5, 1898.

Cities.	Estimated population.	Reported deaths in each.	Deaths under five years.	Percentage of deaths from					
				Infectious diseases.	Acute lung diseases.	Typhoid fever.	Diphtheria and croup.	Measles.	
New York	3,438,899	742	262	10.08	21.56	.28	5.04	1.96	
Chicago	1,619,226	—	—	—	—	—	—	—	
Philadelphia	1,214,256	451	142	14.30	16.50	3.52	6.60	1.76	
Brooklyn	1,160,000	—	—	—	—	—	—	—	
St. Louis	570,000	161	32	7.93	10.98	.61	5.49	—	
Baltimore	560,000	163	62	10.98	19.52	1.22	4.27	—	
Boston	517,732	192	54	5.20	19.24	.52	2.08	—	
Cincinnati	405,000	122	—	9.84	14.76	.82	5.74	—	
Cleveland	360,000	—	—	—	—	—	—	—	
Pittsburg	285,000	92	28	7.63	10.90	—	2.18	1.09	
Washington	277,000	102	13	6.93	22.77	.99	4.95	—	
Milwaukee	276,000	—	—	—	—	—	—	—	
Worcester	105,050	33	13	9.09	9.19	—	3.03	—	
Nashville	87,754	32	12	—	34.43	—	—	—	
Fall River	95,919	29	11	10.35	6.90	—	3.45	—	
Lowell	57,143	25	7	—	20.00	—	—	—	
Cambridge	86,812	26	8	7.70	15.40	—	3.85	—	
Lynn	65,220	18	5	11.11	27.77	5.55	—	—	
Charleston	65,165	—	—	—	—	—	—	—	
New Bedford	62,416	15	8	6.66	13.33	—	6.66	—	
Lawrence	55,510	—	—	—	—	—	—	—	
Springfield	64,790	16	6	12.50	18.75	—	—	—	
Holyoke	42,364	9	0	—	—	—	—	—	
Portland	40,000	—	—	—	—	—	—	—	
Salem	36,062	6	0	—	—	—	—	—	
Brookton	35,853	8	3	12.50	12.50	—	12.50	—	
Malden	32,894	14	3	21.42	7.14	—	—	—	
Chelsea	32,710	—	—	—	—	—	—	—	
Haverhill	31,406	8	3	12.50	12.50	—	12.50	—	
Gloucester	29,775	—	—	—	—	—	—	—	
Newton	28,990	—	—	—	—	—	—	—	
Fitchburg	28,392	8	1	—	—	—	—	—	
Taunton	27,812	—	—	—	—	—	—	—	
Quincy	22,662	—	—	—	—	—	—	—	
Pittsfield	21,891	—	—	—	—	—	—	—	
Waltham	21,812	10	1	—	10.00	—	—	—	
Everett	21,575	9	3	—	22.22	—	—	—	
Northampton	17,448	—	—	—	—	—	—	—	
Newburyport	14,794	—	—	—	—	—	—	—	
Amesbury	10,920	—	—	—	—	—	—	—	

Deaths reported 2,371; under five years of age 695; principal infectious diseases (small-pox, measles, diphtheria and croup, cerebro-spinal meningitis, diarrheal diseases, whooping-cough, erysipelas and fevers) 229, acute lung diseases 418, consumption 280, diphtheria and croup 106, typhoid fever 25, measles 23, scarlet fever and diarrheal diseases 21 each, whooping-cough 14, cerebro-spinal meningitis 13, erysipelas and malarial fever 3 each.

From scarlet fever New York 8, Philadelphia 6, Baltimore and Boston 3 each, St. Louis 1. From diarrheal diseases New York 8, Philadelphia 5, Baltimore 4, Fall River 2, Pittsburg 1. From whooping-cough Cincinnati 4, Pittsburg 3, Springfield 2, Baltimore, Boston, Washington and Lynn 1 each. From cerebro-spinal meningitis New York 7, Malden 3, Boston, Worcester and Cambridge 1 each. From erysipelas New York 2, Baltimore 1. From malarial fever St. Louis 2, Chicopee.

In the thirty-three greater towns of England and Wales, with an estimated population of 11,218,378, for the week ending January 29th, the death-rate was 18.7. Deaths reported 4,031; acute diseases of the respiratory organs (London) 471, whooping-cough 149, measles 148, diphtheria 82, scarlet fever 45, fever 34, diarrhea 30.

The death-rates ranged from 11.3 in Croydon to 29.6 in Wolverhampton; Birmingham 22.4, Bradford 17.0, Burnley 14.8, Halifax 22.1, Hull 14.1, Leeds 16.1, Leicester 15.2, Liverpool 18.8, London 20.4, Manchester 18.0, Newcastle-on-Tyne 17.3, Nottingham 17.2, Portsmouth 19.3, Sheffield 20.0, West Ham 15.8.

OFFICIAL LIST OF CHANGES IN THE STATIONS AND DUTIES OF OFFICERS SERVING IN THE MEDICAL DEPARTMENT, U. S. ARMY, FROM FEBRUARY 5, 1898, TO FEBRUARY 11, 1898.

By direction of the President, CAPTAIN JEFFERSON D. POINDEXTER, assistant surgeon, will report in person to the President of the Army Retiring Board convened at the Army Building, New York City, at such time as he may designate for examination by the board.

CAPTAIN WILLIAM L. KNEEDLER, assistant surgeon, is relieved from duty at San Diego Barracks, Cal., and ordered to report in person to the Superintendent of the U. S. Military Academy, West Point, New York, for duty at that post.

CAPTAIN CHARLES F. MASON, assistant surgeon, is relieved from duty at West Point, New York, to take effect upon the expiration of the leave of absence granted him and ordered to Fort Logan, Col.

Leave of absence for six months, on surgeon's certificate of disability, with permission to go beyond sea, to take effect on or about February 20, 1898, is granted MAJOR LOUIS S. TESSON, surgeon, Fort Ethan Allen, Vt.

OFFICIAL LIST OF CHANGES IN THE MEDICAL CORPS OF THE U. S. NAVY FOR THE TWO WEEKS ENDING FEBRUARY 12, 1898.

L. H. STONE, passed assistant surgeon, ordered to be examined for retirement, February 4th, and to wait orders. Retired, February 10, 1898.

B. R. WARD, passed assistant surgeon, upon completion of temporary duty in New York to proceed home and await orders.

J. G. AYERS, medical inspector, ordered to assume charge of hospital on Widow's Island in addition to present duties.

H. H. HAAS, assistant surgeon, ordered to the "Vermont."

A. C. H. RUSSELL, surgeon, ordered to duty in the Bureau of Medicine and Surgery, February 9th.

G. C. HUBBARD, assistant surgeon, ordered home and granted three months' sick leave.

OFFICIAL LIST OF CHANGES OF STATIONS AND DUTIES OF COMMISSIONED OFFICERS OF THE UNITED STATES MARINE-HOSPITAL SERVICE FOR THE FOURTEEN DAYS ENDING FEBRUARY 10, 1898.

CARTER, H. R., surgeon. To represent Service at Quarantine Convention of South Atlantic and Gulf States. February 7, 1898.

WHITE, J. H., passed assistant surgeon. To represent Service at Quarantine Convention of South Atlantic and Gulf States. February 7, 1898.

WERTENBAKER, C. P., passed assistant surgeon. To proceed to Charlotte, N. C., for special temporary duty. February 9, 1898.

PERRY, J. C., passed assistant surgeon. Granted leave of absence for fourteen days. February 9, 1898.

SMITH, A. C., passed assistant surgeon. To represent Service at Quarantine Convention of South Atlantic and Gulf States. February 7, 1898.

BROWN, B. W., passed assistant surgeon. Relieved from duty at Birmingham, Ala., and directed to rejoin station, Washington, D. C. February 7, 1898.

APPOINTMENT.

DR. FRANK A. HIGGINS has been appointed physician to out-patients at the Boston Lying-in Hospital.

SOCIETY NOTICES.

BOSTON SOCIETY FOR MEDICAL IMPROVEMENT.—A regular meeting of the Society will be held at the Medical Library, 19 Boylston Place, on Monday evening, February 21st, at 8 o'clock.

Dr. M. H. Richardson will read a paper entitled: "Appendix: Conclusions drawn from a Consideration of Eight Hun-

dred Cases; with a Review of One Hundred and Fifty Consecutive Chronic Cases Successfully Operated upon in the Interval."

Dr. E. W. Taylor: "Illustrative Cases of Habit Neuroses."

JAMES G. MUMFORD, M.D., Secretary, 197 Beacon St.

SUFFOLK DISTRICT MEDICAL SOCIETY.—The Section for Obstetrics and Diseases of Women will meet at 19 Boylston Place, Wednesday, February 23, 1898, at 8 P. M.

Papers: Edgar Garceau, M.D., "Differential Diagnosis of Puerperal Septicemia, with Cases."

Emma L. Call, M.D., "Fibroid Tumors as a Complication of Pregnancy and Labor."

F. W. JOHNSON, M.D., Chairman.

C. H. HARR, M.D., Secretary.

NEW HAMPSHIRE MEDICAL SOCIETY.—The adjournment of the Society to May 30 and 31, 1898, necessitates a change of date, as May 30th is a holiday (Memorial Day); therefore, the annual meeting will be holden in Concord, N. H., May 26 and 27, 1898.

G. P. CONN, M.D., Secretary.

NEW YORK STATE MEDICAL ASSOCIATION, FIFTH DISTRICT BRANCH.—The Fifth District Branch of the New York State Medical Association will hold its fourteenth annual meeting at 315 Washington Street, Brooklyn, on Tuesday, May 24, 1898.

"Gonorrhea" will be the subject for papers, discussions and reports of cases.

Dr. Robert W. Taylor will open the subject by giving the Pathology and Treatment in Males.

Dr. J. W. S. Gouley will treat of Urethral Strictures.

Dr. Wm. E. Beardsley will treat of Gonorrheal Rheumatism.

Dr. Lawrence Coffin will treat of Gonorrheal Ophthalmia in Adults.

Dr. Wm. McCollom will discuss the Moral Prophylaxis and the Ethical Duty of Physicians to the Public.

Dr. J. C. Bierwirth will discuss the Medico-Legal Responsibility of Physicians to their Patients and Patients' friends.

Dr. L. Grant Baldwin will give the Symptoms and Diagnosis of Gonorrhea in Females, and will be followed by Drs. Walter B. Chase and Frederick H. Wiggin on the Palliative and Operative Treatment.

Dr. N. L. North, Jr., will present the subject of Gonorrheal Ophthalmia of Infants, and be followed by Drs. A. Mathewson and L. A. W. Alleman on the same subject.

N. W. LEIGHTON, M.D., President.

E. H. SQUIBB, M.D., Secretary.

THE AMERICAN MEDICO-PSYCHOLOGICAL ASSOCIATION.—The fifty-fourth annual meeting of the Association will be held in St. Louis, Mo., commencing May 10, 1898, and continuing until May 13, 1898, inclusive. Arrangements have been made by the committee for the accommodation of members at the Southern Hotel, where all meetings of the Association will be held.

C. B. BURE, M.D., Secretary.

AMERICAN ACADEMY OF MEDICINE.—The twenty-third annual meeting will be held at Denver, Col., on Saturday, June 4, and Monday, June 6, 1898.

The meeting will be held in the Brown Palace Hotel, which has been made the headquarters of the Academy, the management having given special rates for the occasion. It is planned to hold three sessions on Saturday, beginning at 10 A. M., at 3 and at 8 P. M. Another session will be held on Monday, at 10 A. M., at which time it is hoped all the business can be completed, affording the Fellows an opportunity to attend the meetings either of the Association of American Medical Colleges or the National Confederation of State Medical Examining and Licensing Boards, which meet on this day. This plan contemplates holding the reunion session on Monday evening.

BOOKS AND PAMPHLETS RECEIVED.

The Diseases and Injuries of the Conjunctiva, Especially the So-called Granulated Lids. By John H. Thompson, M.D., Professor of Ophthalmology and Otology, Kansas City Medical College, Kansas City, Mo. First edition (with illustrations). Kansas City: Hudson-Kimberly Publishing Co. 1897.

The American Year-Book of Medicine and Surgery, being a Yearly Digest of Scientific Progress and Authoritative Opinion in all Branches of Medicine and Surgery, drawn from Journals, Monographs and Text-Books of the leading American and Foreign Authors and Investigators. Collected and arranged, with critical editorial comments, by twenty-seven American Authors under the general editorial charge of George M. Gould, M.D. Illustrated. Philadelphia: W. B. Saunders. 1898.

Diseases of the Eye. By Edward Nettleship, F.R.C.S., Ophthalmic Surgeon at St. Thomas' Hospital, London: Surgeon to the Royal London (Moorfields) Ophthalmic Hospital. Revised and edited by W. T. Holmes Spencer, M.A., M.B., F.R.C.S., Ophthalmic Surgeon to the Metropolitan Hospital and to the Victoria Hospital for Children. Fifth American from the sixth English edition. With a supplement on Color-Blindness. By William Thompson, M.D., Emeritus Professor of Ophthalmology in the Jefferson Medical College of Philadelphia. With two colored plates and 161 engravings. Philadelphia and New York: Lea Brothers & Co. 1897.

Original Articles.

HEMATOPORPHYRINURIA, WITH THE REPORT OF A CASE.*

BY J. BERGEN OGDEN, M.D.,

Assistant in Chemistry, Harvard Medical School; Assistant in Clinical Pathology, Boston City Hospital.

HEMATOPORPHYRIN is a coloring matter which is derived from the blood, and only rarely forms an important constituent of the urine.

The earliest observations bearing upon this subject were made in 1871, when Hoppe-Seyler¹ found that if hematin was treated with concentrated sulphuric acid, and heat applied, there resulted a compound whose acid and alkaline solutions showed spectral bands unlike any substance he had seen before. Further experiments convinced him that he was dealing with a new compound, to which he gave the name "hematoporphyrin." He forthwith made an effort to determine its chemical composition, arriving at results which were, several years later (1884), found to be incorrect by Nencki and Sieber² who ascertained that its exact chemical formula was $C_{16}H_{18}N_2O_8$.

Nencki³ found that the only chemical difference between hematin and hematoporphyrin was that the latter was hematin free from iron.

In 1874 Baumstark⁴ described two pigments which he obtained from the urine of a case of leprosy, and to which he gave the names "urorubrohematin" and "urofuscohematin." The acid solutions of the former gave a spectrum having a very close resemblance to acid hematoporphyrin, but the alkaline solutions of this substance failed to yield spectral bands like those of alkaline hematoporphyrin. At that time he called attention to the close resemblance of urorubrohematin to iron-free hematin, but did not regard the two substances identical.

In 1880 MacMunn⁵ described a pigment which he obtained from the urine of a case of acute rheumatism, to which he gave the name "urohematin." This pigment was found to yield spectral bands which closely resembled hematoporphyrin. Three years later⁶ (1883) he reported other cases of acute rheumatism whose urine presented this peculiar coloring matter. In a paper⁷ published in 1885 he changed the name of this pigment to "urohematoporphyrin."

Neusser⁸ (1881) described a pigment which he found in the urines of two patients, one of whom was suffering from phthisis pulmonalis, and the other from pleurisy with effusion. This pigment was spectroscopically identical with hematoporphyrin.

Le Nobel⁹ (1887) confirmed MacMunn's observations of the occurrence of a pigment in rheumatic fever, and added that he had met with it in pneumonia and cirrhosis of the liver.

In 1889 Stokvis¹⁰ described a coloring matter which he had found in the urine of a woman who had taken sulphonal.

Ranking and Partington¹¹ (1890) reported two cases, both females, who showed obscure nervous symptoms. No sulphonal had been taken. The urine of both cases had a deep red color, and contained hematoporphyrin.

In the same year von Horley¹² described two cases

of hematoporphyrinuria, and in both instances sulphonal had been ingested.

Salkowski¹³ (1891) reported in detail the chemical and spectral examinations of dark red urines of three patients all of whom had taken sulphonal.

In 1892 Hammersten,¹⁴ Goldstein,¹⁵ Sobernheim,¹⁶ and Quincke¹⁷ reported cases of hematoporphyrinuria following the use of sulphonal. Some of these had taken the drug in large doses for some period, while others had taken only a comparatively small quantity.

Herting¹⁸ (1894) described the urine of a case which had taken both trional and tetronal. It had a dark red color and contained hematoporphyrin.

In the same year Schultz¹⁹ reported a case of severe melancholia, in which evening doses of one-half to one and one-half grammes of trional had been taken for four weeks—a total of 25 grammes. The urine passed during the fourth week had a muddy, reddish-brown appearance, in which the chemical and spectroscopical examination showed hematoporphyrin. A few days later the patient died. There was some question as to whether the trional was the direct cause of death.

Müller,²⁰ Hearder²¹ and others have observed this unusual coloring matter following the ingestion of sulphonal, and all records show that more than a single dose (one gramme) of the drug had been taken before the coloring matter appeared.

Nakarai²² (1897) reported the results of 250 examinations of the urine of 144 patients. Hematoporphyrin was found in only ten cases, namely, in all of the six cases of lead-poisoning examined, two out of four cases of intestinal tuberculosis, one out of seventeen cases of rheumatism, and once in a case of empyema following the use of sulphonal. The method employed for the separation of this coloring matter from the urine was that of Salkowski. (See below.)

According to Stokvis,²³ hematoporphyrin has also been observed following an intestinal hemorrhage. He succeeded in producing an artificial hematoporphyrinuria in rabbits and dogs by giving them sulphonal (0.4 to 0.6 gramme per kilo). He found that the sulphonal, apparently by its irritative action, produced a marked hyperemia and frequently small hemorrhages into the mucous membrane of the stomach and intestines. From the hemorrhagic areas he was able to extract a coloring matter which, by the spectroscope, was shown to be hematoporphyrin. He also found this pigment in the urine of rabbits which had been fed upon fresh meat. His conclusion was that the blood which had entered the digestive tract was first changed to hematoporphyrin, then absorbed and eliminated in the urine as such.

Stokvis²⁴ claims that very small amounts of hematoporphyrin can be found in the highly concentrated urine of any healthy person.

Garrod²⁵ found traces of this pigment in the urines of twenty healthy persons. It was constantly present for a considerable period but in varying quantities. His observations were confirmed by those of Hopkins.²⁶

Salkowski's Method²⁷ for the Separation of Hematoporphyrin from the Urine.—"Take about 30 c. c. of urine, add baryta mixture (equal parts of a ten-per-cent. solution of barium chloride and a saturated solution of barium hydrate), until it is completely precipitated. Wash once with water, and once with absolute alcohol, using the latter drop by drop. Transfer the precipitate to an evaporating dish, add six to eight

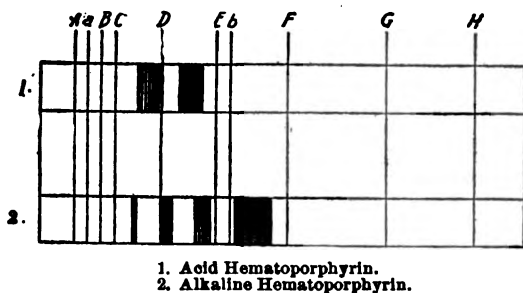
* This paper will appear in the Medical and Surgical Reports of the Boston City Hospital for 1898. An abstract of it was read before the Boston Society of Medical Sciences, February 16, 1897.

drops of concentrated hydrochloric acid and sufficient absolute alcohol to make a thin pap, then stir thoroughly. Heat over a water-bath, then filter through a dry filter paper, and add sufficient absolute alcohol to make from eight to ten cubic centimetres of filtrate."

This solution (acid) may be examined directly with the spectroscope for the bands of acid hematoporphyrin, or may be rendered alkaline, preferably with ammoniac hydrate, and examined for the characteristic bands of alkaline hematoporphyrin.

It is worthy of note that this alcoholic solution containing the pigment readily decomposes, so that the spectral examinations must be made within a period of two to three days.

Spectrum.—The acid alcoholic solution shows two absorption bands: one rather dark, situated between Fraunhofer's lines C and D, with its right border on D; and the second, sharply defined, nearly intermediate between D and E. The alkaline solution presents a four-banded spectrum as follows: A faint and very narrow band about midway between C and D; two between D and E, one with its left border covering D, the other nearer E; and the fourth band, which is the darkest of all, but which, however, is not well defined, includes about four-fifths of the space between *b* and F nearer to *b*.



H. G., female, aged thirty-eight, single, having contracted diphtheria, was admitted to the South Department of the Boston City Hospital on November 25, 1896, under the care of Dr. J. H. McCollom.

Her mother and one sister had died of heart disease. She had acute rheumatism at the age of twenty-one (seventeen years ago), at which time a mitral disease of the heart developed.

In the next thirteen years there were four recurrent attacks of rheumatism, which, with the heart disease, required almost constant treatment. She was quite well in the two years previous to the present attack of diphtheria, excepting for palpitation and dyspnea on exertion.

She had a nervous temperament, and was at times hysterical, having had six or eight hysterical convulsions (eight years ago), following a cessation of the menses. The physical examination showed the heart to be much enlarged, and the presence of a thrill over the precordia. There was a systolic murmur at the apex, transmitted a short distance toward the axilla. There was also a presystolic murmur which was faint but distinct.

Lungs and liver were negative. The abdomen was tympanitic, lax and quite tender. The extremities were edematous.

There was a diphtheritic membrane on both tonsils. A culture from the throat showed the presence of the

Klebs-Löffler bacillus. The patient was given antitoxin, and gradually improved, although convalescence was very slow, probably because of the extensive heart disease.

About two weeks later (December 10th) she began to have diarrhea and vomiting, which persisted. Soon after this she complained of pain and tenderness in the legs, which, on examination, was found to be confined to the areas along the nerve trunks.

Urine (December 22d): high; strongly acid; specific gravity 1.022; albumin, the slightest possible trace; bile and sugar absent. Sediment: a few finely granular and hyaline casts, some with renal epithelium adherent. Considerable squamous and scaly epithelium, few leucocytes, and an occasional normal blood globule. The urine chart showed the twenty-four-hour quantity to vary between 450 and 600 c. c.

On December 15th the patient was discharged from the South Department and admitted to the wards of the main hospital on the service of Dr. G. B. Shattuck, and later that of Dr. C. F. Withington.

About this time she began to lose sensation in the legs; this was followed (two weeks later) with almost complete loss of sensation up to the waist line, accompanied by involuntary micturition and dejections. The pain on pressure over the nerve trunks was extreme. Patellar reflexes diminished, but present. General muscular atrophy. Diarrhea persistent; frequent attacks of vomiting. Free, and at times, profuse perspiration.

On or about February 10th the urine was found to be very scanty in amount, but on account of the involuntary micturition it could not be collected. On February 12th, however, a small catheter specimen was obtained which had the following characteristics: Color, very dark, resembling port wine; specific gravity, 1.025; reaction, strongly acid; uropheins and indoxyl much increased; chlorides and phosphates much diminished; urea, 3.15 per cent.; albumin, a very slight trace (heat test); bile and sugar absent. The sediment was abundant in quantity, and consisted of a deposit of amorphous urates and a few uric-acid crystals. Some squamous epithelium and a few pus corpuscles. An occasional brown granular cast, and rarely a blood globule. A little fat found adherent to an occasional cast.

No more urine could be obtained, in fact very little was secreted. The patient gradually lost strength, and died on the morning of February 14th. An autopsy could not be obtained.

The treatment consisted chiefly of heart tonics, such as tincture digitalis, tincture strophanthus, strychnine, etc. Bismuth and salol were from time to time given for the diarrhea, but none within four weeks of the time of death. At two different times (January 31st and February 6th) 15-grain doses of trional were given for insomnia.

The dark red urine which was collected on February 12th was examined with the spectroscope. At first, the untreated urine (acid) was used, but with unsatisfactory results, since the two spectral bands of acid hematoporphyrin could not be made out with certainty. The pigment was then separated from the urine by Salkowski's method (see above), and it was found that both the acid and alkaline solutions gave the characteristic absorption bands of hematoporphyrin.

The trional which had been taken was probably the cause of the unusual pigment in the urine of this case,

although there is some doubt: first of all, on account of the length of time which elapsed (eleven and five days respectively) between the ingestion of the drug and the discovery of the hematoporphyrin in the urine; and, secondly, the inability to collect and carefully examine the urine after the trional had been taken.

Whether the disease of the nervous system, and the marked gastro-intestinal disturbance in the case had any bearing upon the cause of the hematoporphyrinuria is not known, although such a possibility exists.

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COMPLETE CONGENITAL OCCLUSION OF THE POSTERIOR NARES: REPORT OF A CASE.¹

BY J. PAYSON CLARK, M.D.

THIS condition is one of such rarity, judging from the literature of the subject, that it might at first seem of little practical interest to the physician; and yet there is no doubt that infants may die from the want of knowledge on the part of the family doctor of the possibility of the existence of such an abnormality. Apart, however, from any practical value which the report of such a case may have, it is certainly interesting in showing how an individual may grow up and live for years in comparative health, to all intents and purposes, without a nose, the respiratory function of that organ devolving entirely upon the mouth.

In a very thorough paper published in 1886, Hubbell gives a *résumé* of all the cases of congenital occlusion of the nostrils, unilateral, bilateral and partial, which had been reported up to that time, making seventeen in all. Of these, occlusion was complete in both nostrils in eight cases, complete in the right nostril in four, left in three. It was incomplete in both nostrils in one case, and in the left in one. The occlusion was bony in twelve cases, membranous in five.

¹ Read before the Boston Society for Medical Improvement, November 15, 1897.

Since 1886 I can find but three cases of complete bilateral occlusion reported. A. Schwendt, of Basle, published a monograph on this subject in 1890. I have been unable to obtain the original article, and the references to which I had access did not mention the number of his cases in which the occlusion was complete. Cases of unilateral occlusion by a bony or membranous septum are more common. Cases also occur in which the occluding septum is only partial in one or both nostrils. But as these two classes offer no important special conditions for consideration, I shall refer only to those cases in which the occlusion was complete in both nostrils, which seem to form a distinct group because of the more serious symptoms which they present.

The following are brief abstracts of reported cases in which the nasal occlusion was complete. Those before 1886 were taken from Hubbell's paper, although the original articles were also consulted in almost every case.

The first case which appears in literature is that of Emmert, which was seen by him in 1851. The patient was a boy, seven years of age, who had been unable to breathe through his nose from birth. He was nourished with difficulty in infancy. Both choanæ were entirely occluded by a bony wall. Mucus and tears constantly discharged from the nose. The sense of smell was absent. The obstruction was penetrated with a special trochar and the openings enlarged with a catheter. Tubes were worn in the nose at times for six months. It was not ascertained in what manner or from what bones the partition arose. The father had syphilis of the pharynx. As nothing is said of the hearing, it is presumed that both it and the condition of the ears were fairly normal.

Luschka's case, reported in 1859, was a female infant who died shortly after birth. The posterior nares were occluded by a bony plate extending upwards and backwards from the horizontal plate of the palate bone to the lower surface of the sphenoid.

Bitôt discovered in a fetus of seven months the nasal foræ imperforate posteriorly, the obstruction being due to the presence of two triangular bones of more or less regular shape, articulating above with the sphenoid, below with the os quadratum or the horizontal plate of the palate bone. Exteriorly their borders corresponded with those of the internal wings of the pterygoid apophysis, while internally they infringed one upon the other and formed a median fissure.

J. Solis-Cohen's case was an infant which had difficulty in sucking and breathing. This was relieved by boring through the occluding structures with a knife and steel probe.

Ronaldson's case, an infant with complete membranous obstruction of both posterior nares and no other abnormality, died soon after birth.

Wilkerson reports the case of a child six years old, who was hand-fed as an infant, being unable to nurse. The senses of smell and taste were very deficient. Both nasal cavities were obstructed at their posterior ends. The obstruction was partially removed by a (special) revolving trochar and canula. The bony plates appeared to be about a quarter of an inch thick. Tubes were worn for six days, then bougies were passed. Nasal respiration was established. No deafness was noted.

Schrötter's case (1884) resembles mine in many ways. The patient was a girl of nineteen years, strong

and well developed, but with both nostrils completely occluded and an adenoid facies. Secretion from the nose was free when lacrymation was increased. The mouth and throat were dry most of the time. There were occasional headaches. The hearing was below normal, taste defective and smell absent. Speech was a little difficult and nasal. The membranæ tympani were deeply drawn in. The nasal foræ appeared normal in size from in front. The closing diaphragms were a little in front of the posterior orifice of the nasal foræ. They were bony, thickest near borders, and their direction was upwards and backwards. They were opened by galvano-cautery and chisel. After operation the breathing was free, the speech and facial expression greatly improved and the sense of smell imperfectly regained.

Hubbell's patient was eighteen years old when he first saw him. He had never breathed through his nose and, as an infant, could not suckle. He was strong and well developed. There was an entire absence of nasal quality in the voice. The sense of smell was absent, but taste was good. Swallowing was more difficult than normal. The discharge of mucus from the nose was free and a source of much annoyance. Hearing was acute, and the membranæ tympani were normal. The nose was quite large, the cavities anteriorly of normal shape and size, but the mucous membrane more or less swollen and congested. The posterior border of the septum was prominent. The obstruction was at the depth of one and a half inches. It was a thin bony wall covered on both sides by mucous membrane. It was punctured without much force by giving a trochar a drilling motion. The openings were enlarged under chloroform. Sounds were regularly introduced afterwards and tubes were worn for a time.

Eulenstein's patient, aged fifty-six, had both nostrils occluded by an osseous membrane in the posterior nares. These were perforated with a drill and the openings enlarged with a nasal saw. There was no diminution of hearing in this case. No history of this case is given.

Watson's case was probably one of complete congenital bony occlusion of both nostrils. The patient was a farmer, aged twenty, who had had the left nostril opened two years before by means of a galvano-cautery. Watson cut through the bony wall in the right side with a gouge-chisel. The report of the case is very brief and incomplete.

Suchanek saw his patient for the first time when he was eleven years old. The boy's color and development were good. There was complete anosmia, although taste seemed well developed and appetite good. The hearing was unimpaired. The patient had no headaches and rarely complained of dryness in mouth and throat. The play of the nostrils was absent. The skull showed no abnormality and the intelligence was good. Anterior rhinoscopy was possible only after the removal of a mass of grayish mucus. In the posterior nares the septum was recognizable as a projecting ridge between the occluding membranes. The latter were also visible through the anterior nares. The membranes were pierced by a trochar and tubes were worn for three months. The sense of smell was not recovered.

My patient, L. L., a girl of eighteen, upholsterer, came to the Out-patient Department of the Massachusetts General Hospital last June, on account of com-

plete inability to breathe through the nose. She was born in Nova Scotia, as were also her parents. She has three brothers, all living. The mother died of consumption when the patient was seven years old. The father is living and well. All the patient's relatives are tall, but she is barely five feet in height. The condition of which she complains has existed since birth, but its cause was unrecognized. It was discovered at once that the infant could not nurse, so that feeding with a spoon had to be resorted to. Very early in life it was thought she suffered from headache or earache, and at the age of four months without the concurrence of any illness her ears began to run. Otherwise she was a healthy child, having had only measles and whooping-cough, both in a mild form. When the patient went to school she began to have fainting attacks and dull headaches, which have continued with little diminution up to the present time. In studying, she found it difficult to concentrate her mind, so that, as she was ambitious, she was obliged to devote nearly twice as much time as other children to her books. She is short and slight, with the typical "adenoid face," that is, the face of a mouth-breather — drooping eyelids, narrow, long face, pinched nose and slightly open mouth. The hard palate is very narrow and high, the upper teeth badly crowded. There appears to be no abnormality about the chest, which seems fairly well developed for a girl of her size. The chest-expansion appears about normal. She is much troubled with dryness in the mouth and throat, especially in the morning. During any illness she has often experienced considerable difficulty in breathing. The sense of smell is entirely wanting, although taste is well developed. The patient has a good appetite, enjoys her food, and has her favorite dishes as well as those she does not like; but it was evident on experiment that she could make none of the finer distinctions of taste for which the olfactory organs are necessary. Some of her distinctions of taste are interesting: A wintergreen lozenge had a "sweet and stinky" taste. A sassafras lozenge was simply "sweet." Ginger gave a burning sensation. Lozenges of a cinnamon or clove flavor were the same, but both were distinguished from ginger. The patient insists that she can tell the difference between meats; for instance, she likes veal but does not care for beef. She also says she is very quick at distinguishing bad butter from good.

On examination both nostrils were seen to be more or less filled with a rather thick grayish mucus, which at times causes the patient considerable annoyance, especially when she has a cold. On getting rid of this mucus a good view was obtained of the anterior nares. The nasal mucous membrane was pale, the septum deviated to the left, presenting a ridge in the left nostril which was quite obstructive.² The right lower turbinate was enlarged. The occluding wall was not visible on account of the large turbinate on the right and the ridge on the left. But a probe introduced into each nostril met the obstruction about five centimetres from the anterior nares. It was apparently covered by smooth mucous membrane. The soft palate lay so close to the posterior pharyngeal wall that posterior rhinoscopy was not possible. The forefinger introduced into the posterior nares discovered a firm wall

² The patient fell and injured her nose when she was six years old. This may have been the origin of the septal deformity or what seems equally probable the deformity may be developmental, the result of the growth of the septum while the nasal chambers remained undeveloped.

in each choana, covered with mucous membrane, forming a continuous surface with the vault and sides of the pharynx, meeting the septum a little in front of its posterior border, so that the latter stood out under the finger as a smooth ridge. The naso-pharynx was small and undeveloped.

On operating, the occluding walls were found to consist of bone, varying in thickness from two to nine millimetres, being apparently thickest near the septum and nasal floor. After the application of a ten-per-cent. solution of cocaine in the right nostril, I drilled through the bony wall with a trephine (five millimetres in diameter) run by an electric motor. The progress was a slow one on account of the extreme hardness of the bone in some places. I enlarged the opening from time to time, so that now it is eleven millimetres in width by thirteen millimetres in height. In the left nostril I first removed the ridge with a trephine, and then drilled through the partition in a similar manner. The bony wall appeared in general rather thicker than that

may arise from both. Whatever its origin, the symptoms resulting from this complete nasal occlusion are distressing enough. As Dr. Knight says, such an occlusion is "almost of necessity fatal to the nursing infant."

Of the cases which I have been able to collect from literature, one was a seven months' fetus, two were infants who died soon after birth, with apparently no other ailment, and one was operated on in infancy. Many infants must have died from this condition in whom it was never recognized. And when one considers the serious handicap that such a condition must be to the infant in its struggle for existence I think the greatest wonder must be that any such cases have lived to grow up. For there is not only the inability to suckle and the consequent difficulty in obtaining sufficient food, but also the exposure of the bronchial tubes and delicate air cells of the lungs to the constant irritation of air insufficiently warmed, moistened and filtered. The absence of the olfactory sense is a nat-



Longitudinal Section of a Core of Bone removed by trephine through the thickest portion of the obstructing wall in the right nostril, showing the density of the bone. (Dimensions of section, 10 mm. \times 2 mm.)

in the right nostril. The opening in the left nostril is somewhat smaller than in the right. It will not be possible to make this much larger without first straightening the deviated septum. I shall do this operation later if the nasal respiration does not seem sufficiently free.

No trace of the sense of smell has developed. There was only a slight impairment of hearing before the operation, and there has been no perceptible change since. Dr. H. L. Morse kindly examined the ears and tested the hearing. He reports a large dry perforation of the lower posterior portion of each drum. Hearing: right ear, very low whisper 16 ft., watch 42 in. ($\frac{1}{2}$); left ear, very low whisper 16 ft., watch 37 in. ($\frac{1}{2}$).

On account of the headaches not having ceased (although much better) since nasal respiration has become established, I thought an examination of the eyes important. Dr. F. E. Draper was kind enough to make the examination for me. He reports vision, right eye = $\frac{1}{2}$ with +.50 D. cyl., ax. 75° = $\frac{1}{2}$; the left eye the same. He says, "You will see that the amount of astigmatism is very small, but I believe it is sufficient to account for the headaches."

The patient has had no attack of fainting since the operation. I have not found bougies or tubes necessary in after-treatment as the openings which I have made have, so far, shown no tendency to become closed.

The etiology of these cases is obscure. Dr. C. H. Knight says they "would seem to be an overgrowth of bone from hypernutrition." As to the origin of the bony plate, Luschka is of the opinion that it is a continuation of the free border of the horizontal plate of the palate bone, while Kundrat thinks it is an extension of the vertical plate, and Hubbell suggests that it

is a result of this condition. In Schrötter's case it was imperfectly restored after operation, but this seems to be an exception to the rule. The accumulation of the nasal secretion is usually spoken of as an annoying symptom. Dryness of the mouth and throat is at times very trying. The facies is the characteristic one of constant nasal obstruction. Articulation is, as a rule, difficult, and the voice has that dead quality (absence of resonance) which accompanies nasal obstruction from other causes.

In Schrötter's case the speech and facial expression is said to have greatly improved after operation. It is not stated how gradual this improvement was. In my patient there has been no appreciable improvement in either respect. If such an improvement does occur, it must be very gradual, as a result of changes which may take place, such as increase in size of the nasopharynx, broadening of the hard palate, etc. The patient may be too old for such changes to take place. I would say, however, that the soft palate already hangs far enough away from the posterior pharyngeal wall to allow a good posterior rhinoscopic examination, and it is possible the dentist can do something towards widening the upper jaw. Headache is a common symptom. The eyes are usually unaffected. Hearing seems, as a rule, to be uninfluenced by this condition, Schrötter's and my case being apparently the only exceptions. Knowing the effect on the drum membranes of repeated swallowing with the nose closed, one would, I think, expect some impairment in hearing to be the rule instead of the exception.

Before closing, I wish to express my thanks to Dr. J. L. Goodale for his beautiful preparation of the section of bone from which the drawing was taken, as

well as to Drs. Morse and Draper for their special examinations.

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PYONEPHROSIS.

A CLINICAL STUDY, WITH DETAILED REPORT OF A CASE OF EXTREME TYPE.

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THE following case is one of extreme type, and is reported in full because it formed the basis of a study that shows of what value, as well as limit, the modern researches of Kelly and others may have in the practical treatment of the severer types of pyonephrosis.

Mrs. Wm. H. H., age thirty-four years, was married in July, 1884, at which time she was in excellent health. Thirteen months after her marriage she was delivered of a six months' dead fetus. Immediately subsequent to this event she began to complain of symptoms that led to a diagnosis of disease of bladder, and backward displacement of the uterus. The bladder trouble becoming intractable, she went to the Women's Hospital in New York in 1887, and had a buttonhole operation performed by Dr. Emmett. She remained at the hospital five months. Before this operation there was painful micturition, pyuria and vesical tenesmus, with resulting insomnia and debility. Little improvement immediately followed the operation, but in about a year she began to pick up both in health and spirits.

In February, 1889, she re-entered the hospital, and had the opening in her bladder repaired. Shortly afterwards she was operated on for lacerated cervix and perineum. She remained in the hospital until the last of June, 1889, during which time she gained greatly, and returned home in a fair condition of health.

Conception occurred soon after her arrival home and January 15, 1890, she gave premature birth to a seven months' child, which survived for a few weeks. During her delivery the cervix was again lacerated and evidently there followed a condition of sub-involution, with backward displacement of the uterus.

In April, 1894, I was called to see her for the first time, by her attending physician, Dr. W. J. Clarke, of Milford, and repaired the cervix, replacing the uterus at the same time. She made a good recovery from the operation, but the uterus dropped back into its former position, and gave rise to such disturbance that treatment became necessary, and in June she entered a private hospital, where I performed an operation for the ventro-suspension of the uterus. Owing to her previous history of cystitis, great care was exercised and every precaution taken before,

during and subsequently to the operation to avoid irritating the bladder. An easy recovery followed the operation. During her stay in the hospital she had an attack of sharp pain, followed by soreness along the track of the left ureter; and a diagnosis of ureteral trouble, either passage of a calculus, some foreign body, or ureteritis, was made. She claimed, before entering the hospital having had two similar attacks. The attack readily subsided, and, on her return home, she was in a comfortable condition except perhaps for attacks of dysmenorrhea.

She had no further attack of colic until November, 1894, when severe pain occurred along the right ureter, and confined her to her bed for several days. These attacks of pain now became more frequent, appearing about every five weeks, until September 24, 1895, when she took to her bed and never left it until she entered my private hospital, July 28, 1896.

During the early period of her confinement, she had periodical attacks of pain, followed by the discharge of great quantities of pus in the urine and subsequent temporary improvement in health and comfort. Before the discharge of pus a large swelling occurred in the region of the right kidney, which subsided simultaneously with the evacuation of pus. The urine became strong smelling, alkaline, and contained a thick deposit of mucus. Micturition was painful; the bladder was irritable and at times there was some pain in the region of the left kidney. During her long period in bed the bladder was washed out daily with a solution of boric acid and other bland antiseptics and, by this means, the distressing symptoms were kept under control. Her appetite rarely suffered during this long period of disability, and she insisted upon a liberal diet of meat and vegetables, at the same time resenting every effort in the most strenuous manner to place her upon a diet of liquid food. Emaciation was progressive and extreme. From time to time uremic symptoms set in and threatened dissolution, but a special activity of the bowels was efficient to avert the fatal termination.

I lost track of the patient for several months after she took to bed, and it was late in the spring of 1896 that I was again called to see her. At this time the diagnosis was obvious and the question of treatment the main point for decision. Her condition was so feeble that she could barely move in bed, and only with the assistance of others. This fact precluded any severe operation; so I determined, if possible, to catheterize the diseased kidney, and, by this means, to administer local medication. During the months of May and June I made three attempts at the home of the patient in Hopedale, but could get neither catheter nor bougie beyond a constriction situated in the ureter, about one inch from the pelvis of the kidney. In July she was brought to the hospital on a mattress, where I had greater facilities for studying the case and its treatment. For a week after entering the hospital she was in a dangerous condition, and only treatment of the blandest nature could be tolerated. Pain in the side, nausea and vomiting, headache, insomnia and confined bowels were prominent among her symptoms. Her temperature was elevated, and her pulse was rapid and irregular. In other words, the fever of septic absorption was present. At the end of a week she quieted down somewhat, and I again practised the introduction of the ureteral catheter at intervals of every third day. However, I could not get it beyond

the constriction that was situated just below the kidney, and I did not dare to exercise force for fear of forming a false passage.

The chart (A) gives a tabulated statement of the temperature, pulse, amount of urine and its specific gravity, and the character and number of stools for the second and third hospital weeks, which enables one to form some idea of the condition of the patient previous to the catheterization of the kidney and the effect of treatment.

July 12th I determined to take counsel on the case, and, knowing of the successful work and experience of Dr. Edward Reynolds, I referred to him.

On the morning of the 13th Dr. Reynolds passed a catheter into the kidney, and drew off a quantity of thick fetid pus by means of aspiration. The kidney was washed out with normal salt solution, and the catheter fastened *in situ*.

The question of treatment was then debated; and it was decided to drain, wash out and clean the pus cavity with salt solution, and medicate with a one-half-per-cent. solution of nitrate of silver, removing the excess of silver solution with a second injection of salt solution.

A daily record of the quantity of urine was kept, together with its specific gravity, the amount of residual urine aspirated before washing out the kidney, the quantity of sediment that was held in suspension after ten hours' settling, and the amount of salt solution that flowed into the kidney from a given height of the syringe and in a definite time (two and one-half feet and three minutes). From time to time more complete analyses of the twenty-four-hour urine were made by Dr. Ogden, and are embodied in his separate report. By these means it was hoped to determine the general and constitutional improvement and the local changes, contraction of the pus cavity and diminished suppuration.

The catheter was kept in place for seventeen days. At the beginning of treatment eight or nine ounces of salt solution were used in each injection. This diminished in amount until, on the seventeenth day, only two ounces were used with each washing, which showed extensive contraction and diminution in the capacity of the pelvic cavity.

The quantity of urine secreted by the diseased kidney immediately after catheterizing was about 14 oz. This diminished in quantity until only 10 oz. were secreted at the time the catheter was withdrawn. From the left, or normal kidney, however, there was a great increase in the daily secretion of urine, so that from an average of about 20 oz. the amount reached 43 oz. on the seventeenth day.

The specific gravity of the urine from the right kidney did not change materially, but that of the left kidney increased slightly, about .002.

The quantity of urea excreted by the diseased kidney did not vary half a grain in twenty-four hours, the maximum amount being 1.47 gr. There was a simultaneous increase with the amount of urine from the left kidney, varying from 7.17 to 11.07 gr. The diminished quantity of urine and urea showed extensive destruction of the right kidney. The residual urine aspirated before washing out the kidney served the basis for calculation of the completeness of drainage through the catheter. At first this varied from five to eight ounces, but by the seventeenth day absolutely nothing could be obtained. The amount of sediment

was supposed to vary with the amount of local destruction. There was a tendency toward increase, but I could draw no definite conclusion from this data. The pulse and temperature gradually assumed the normal range, with a single fluctuation on the fifth day, due to a plugging up of the catheter and slight hemorrhage following the administration of an excessive quantity of silver solution. The appetite improved greatly, and the patient rested well; in fact, there was a remarkable improvement in health, strength and comfort.

About the fifteenth day there was some evidence of slight soreness, frequent micturition from the bladder, and nervousness. This increasing, it was thought advisable to remove the catheter, which was done on the seventeenth. The details of these seventeen days of treatment with catheter drainage of the right kidney are shown in the chart (B).

The kidney drained so well before the catheter was removed that it was hoped spontaneous drainage would occur through the dilated ureter after the instrument was withdrawn, but in this we were disappointed.

On the evening of August 30th, the day the catheter was withdrawn, the patient complained of pain in the right side and general disturbance. The bladder was washed out and a large mucous plug removed. The patient slept fairly well at night.

August 31st. Swelling in right side causes pain and uneasiness. Urine passed during the day, 49 oz. of 1.012 specific gravity.

September 1st. Pain required suppository of morphine; at 11 A. M. chilly sensations followed, with nausea and vomiting; at 12 (noon) a second chill, lasting 40 minutes; 47 oz. of urine was passed during the day, of 1.010 specific gravity.

September 2d. Inserted renal catheter with great ease and aspirated several ounces of very foul-smelling pus. The kidney was washed out with normal salt solution, and treated with nitrate of silver solution. Patient had a comfortable day and slept well at night. Catheter was left *in situ*.

September 3d. This morning four ounces of urine were aspirated, which was mixed with bloody pus. The kidney was washed out and treated with silver solution. About 3 P. M. it was noticed that the renal catheter did not drain, and the aspirator was applied. Fourteen drachms of turbid urine were withdrawn, which was followed by a discharge of blood. An attempt to throw in some salt solution failed and the catheter was therefore withdrawn and found filled with a blood-clot.

The catheter was cleaned, and replaced with but slight difficulty. Twenty-four hours' urine: right kidney, 8 oz. (specific gravity 1.014); left kidney, 23 oz. (specific gravity 1.011).

September 4th. At 7.30 A. M. 5½ oz. of urine and stinking pus, with blood-clots, was aspirated through the catheter. The quantity, as well as the character, of the aspirated material showed that drainage through the catheter was imperfect. The kidney was washed out and treated with silver solution. During the twenty-four hours 8½ oz. of urine and pus was collected from the right kidney, having a specific gravity of 1.013, and 56 oz. from the left kidney. The renal catheter became plugged, and the aspirator was applied a second time at 7 P. M. The patient had a fairly comfortable night.

September 5th. The catheter became plugged during the night, and it became necessary to remove it for cleansing. In attempting to replace the catheter the

ureter was found very irritable at the site of the old stricture, and bled freely from the slightest touch of the instrument. I found it impossible to reach the kidney, and waited several hours for the parts to quiet down. During the afternoon an attempt was again made to catheterize the kidney, but in vain. The patient passed a very restless night. The temperature increased steadily during the day and night, and the bladder was very irritable.

September 6th. Twice during the day attempts were made to catheterize the kidney, but were unsuccessful, hemorrhage and pain following each effort. The temperature steadily increased, reaching 102° in the evening. The right side was much swollen over the region of the kidney, but it was less painful. Pain was complained of on the left side. The patient passed a poor night.

September 7th. The pain in right side required morphine. Blood-clots were passed in her urine. An attempt to pass ureteral catheter produced sharp, shooting pains, more marked at the junction of bladder and ureter. The swelling in the side increased. Patient was very nervous.

September 8th. Realizing the uselessness of any further attempt at local treatment through the catheter and encouraged by the fair result in a similar case treated by incision and drainage, which was reported to me orally by Dr. John L. Hildreth, I cut down upon the tumor, emptied it of eight or ten ounces of stinking pus, and inserted a large rubber drain. The operation was done quickly under a short anesthesia with chloroform mixture. Measures were taken to prevent chilling the patient and obviate shock. The height of the reaction was reached the night of the operation, the temperature rising to 103° F. There was a morning drop to normal, with a secondary rise that night to 101° F. The temperature remained normal after this, except with an occasional rise when complications of the wound healing occurred. The pulse remained rapid and weak. The secretion of urine was much diminished, and uremic symptoms set in, loose bowels, nausea, vomiting, headache, chilly sensations and great nervousness. Stimulants were given with nitro-glycerine, strychnia and digitalis, but failed in the desired effect, and so pilocarpine was resorted to, with relief to the patient.

September 9th. Restless all day, bowels loose, scanty urine, rapid pulse, anorexia. Nervous system much depressed. First part of night patient was very restless.

September 10th. The patient complained of much pain in the bladder, of a sharp cutting nature, and pain in the wound of right side. Pain uncontrolled by a quarter-grain of morphine, but was eased with half a grain. Fourteen ounces of urine, with a specific gravity of 1.019 were passed by bladder during the day. As she had not passed urine of this specific gravity for a long time previously, it was suggested that the concentration of the urine was partly the cause of the bladder pain, as well as the pain noticed in the region of the left kidney. Patient was sore, and could not turn in bed. She slept fairly well at night.

September 11th. Felt better; some headache, and nausea with vomiting. From then on she improved in health, only complaining of local soreness, and with a rapid pulse, the most prominent symptom of her constitutional disturbance.

On the 15th and 18th of September local inflammation about the wound caused a slight rise of temperature and general disturbance; and on the 25th of October she had a slight attack of influenza, with chill, and rise of temperature lasting three days.

Chart *C* shows the pulse and temperature, as well as quantity of urine secreted daily, from the time the ureteral catheter was first withdrawn until the operation of nephrotomy was performed.

Chart *D* shows the condition of the pulse, temperature and urine during convalescence. She left the hospital November 4th in good spirits.

Chart *E* shows the pulse and temperature after the final operation, nephrectomy, was performed.

The following reports, taken from letters of her husband, show her final state:

November 24, 1896. Walked into the bedroom with assistance. (First time for over one year.)

December 2, 1896. "Mrs. H. is getting along nicely, is able to walk without assistance, and lies down only once a day for rest."

December 20, 1896. "Mrs. H. continues improving right along, and is as happy as a lark. She says that sometimes she feels as if she did not have a bad side at all."

January 18, 1897, Lowell, Mass. "We shall come in and make you a call some Saturday afternoon or Sunday morning."

March 5, 1897. Just after last writing Mrs. H. "lost her hired girl and did her housework for one week; but at the end of the week her side became quite sore, so that she had to stop work." This caused a proliferation of granulations, and the patient calling at my office I cauterized the wound.

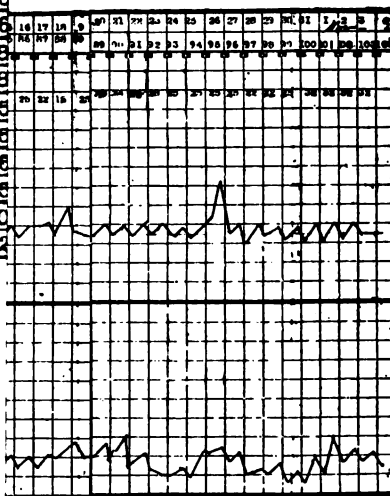
May 16, 1897. "The wound in the side is almost healed (free from granulations). I have been using Markasol lately, and since using it have had no trouble with the proud flesh."

Immediately after making the fistulous opening great trouble was experienced in collecting the urine. As the wound closed down, this was gradually overcome and by a careful study of apparatus, with some experimenting, a tube and reservoir was devised of very simple character yet of great functional perfection. It consists of a piece of hard-rubber tubing, one-fourth of an inch in diameter at one end, and tapering to three-sixteenths. The tube is two inches long, and bent at right angles three-sixteenth of an inch from the smaller end. A round piece of thick rubber, about the size of a silver dollar, is perforated with a small circular hole at the centre. This is stretched over the tube as far as the angle. To the larger end of the tube a piece of soft-rubber tubing is attached, covering the tube as far as the rubber dam or diaphragm. This is about three inches long, and two or more holes are cut in the end to admit better draining. This end passes into the kidney. To the outer short end of the hard-rubber tube is attached a piece of smaller soft-rubber tubing about a foot and a half in length. This acts as a reservoir. It passes through a hole in the clothing, and the end is held in the skirt-pocket where it is closed by an ordinary fountain-syringe snap. The tube is held *in situ* by two or three folds of a bandage about the waist passed over the diaphragm. The reservoir can be emptied frequently without any inconvenience to the patient. Contrary to what might be expected of such a small closed receptacle, the urine flows into it as perfectly

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C

Mo.	Bowels		Urine		Pul	CANNETT'S SCALE.)										Days of Month.	Days of Disease
		Stools	Sp. Gr.	Oz		103	104	105	106	107	108	109	110	111	112		
July			1.005	28	85											30	1
30					90											31	2
31	H	1	1.000	35	90											1	3
					95											2	4
Aug.	large	1	1.008	25	80											3	5
1					90											4	6
2		1	.010	20	80											5	7
					95											6	8
3		1	1.008	30	80											7	9
					95											8	10
4	loose	11	1.012	19	92											9	11
					80											10	12
5	loose	11	1.005	28	98											11	13
					94											12	14
6		1	1.005	35	90											13	15
					98											14	16
7		1	1.005	28	86											15	17
					86											16	18
8		1	1.005	28	85											17	19
					86											18	20
9		0	1.005	25	88											19	21
					88											20	22
10	loose	11	1.006	25	85											21	23
					88											22	24
11	loose	11	1.007	25	86											23	25
					85											24	26
12	loose	11	1.005	22	90											25	27
					92											26	28



Dr. of Month.
Dr. of Treatment.

CHART 6

1st. Ounces of normal salt solution used daily in washing out the right kidney; Siphon syringe elevated 2 1/2 ft. above the patient.

Time. Dose of 1/2% nitrate silver solution injected daily into pelvis of R. kidney.

2nd. Ounces of salt solution used in washing out the process of silver solution.

3rd. Ounces of urine daily separated R. kidney.

4th. Daily Sp. Gr. urine of R. kidney.

5th. Grams of urine in 24 hours urine R. kidney.

6th. Dose of residual urine aspirated before washing out R. kidney.

7th. Ounces of 5-percent silver nitrate urine R. kidney.

8th. Ounces of urine daily separated L. kidney.

9th. Daily Sp. Gr. urine of L. kidney.

10th. Grams of urine in 24 hours urine L. kidney.

11th. Ounces of urine daily separated both kidneys.

12th. Grams of urine in 24 hours urine both kidneys.

13th. Urine.

14th. Temperature Fahrenheit's scale.

15th. 100°

16th. 90°

17th. 80°

18th. 70°

19th. 60°

20th. 50°

as can be desired, without overflowing or leaking about the margin of the tube when regularly emptied. The soft-rubber dam admits movement of the body without altering the axis of the hard-rubber tube, and thus does away with the irritation found where a rigid diaphragm was used. The soft tip prevents irritation of the kidney, and admits the tube to readily conform to the shape of the canal. The hard tube prevents contraction and closure of the fistulous opening and insures good drainage. The small short turn-down prevents closure of the rubber reservoir from bending short on itself, and is so short and small that it exerts no leverage upon the longer portion of the tube during movements of the body.

Finding that active exercise produced an irritation of the fistulous opening that rendered her uncomfortable for several days afterwards, Mrs. H. consulted me in the spring of 1897 about removal of the offending organ, and entered my hospital for this purpose.

July 25th. The organ was found firmly bound by adhesions to the peritoneal covering, and was removed by *morcellement*. The hemorrhage was controlled by clamps. Convalescence was uninterrupted until the the thirty-sixth day after the operation, when a sharp attack of pyelitis occurred in the left kidney, with anuria for five days. The temperature and pulse ran high, and the dissolution of the patient seemed imminent. However, the affair quieted down, and with the exception of a transient subsequent disturbance of pulse and temperature, the further recovery was without event. She left the hospital eight weeks after entering, and returned to her home, now in a remote part of Connecticut.

Recent reports state her to be in a fair condition of health. October 31st she took a six-mile drive in a carriage, driving the horse herself.

(To be continued.)

MASSACHUSETTS GENERAL HOSPITAL.

CLINICAL MEETING OF THE MEDICAL BOARD, DECEMBER 10, 1897.

(Concluded from No. 7, p. 150.)

DR. J. C. WARREN presented a paper on

MODERN OPERATION FOR CANCER OF THE LIP.

The first communication is in reference to a disease which does not involve a very formidable operation, but is of importance to the patient, nevertheless, that is, cancer of the lip. Cancer of the lip is an infection which we all know is of a class which is susceptible of cure by operation in quite a number of cases. The prognosis is favorable, and perhaps it is due to that fact that surgeons have become more or less careless in their precision in the operation, perhaps less enterprising than in some other forms of operation; and it has seemed to me of late years the tendency to diminish the extent of the operation had increased with the advent of cocaine anesthesia. Many of these cases were relegated to the out-patient department, patients coming and having the usual classical V-shape of lip taken out under cocaine and going home. In reviewing the whole subject of cancer the American Surgical Association undertook two years ago to see what further steps could be taken in operative technique for the cure of the disease so as to prevent a recurrence, and

since then I have tried to do a routine operation which would cover a much larger area than used to be contemplated. We all know that the route of the disease is from the lip; that it leaves that primary point of infection and involves the gland at one or the other side of the jaw just inside the lower margin of the horizontal portion of the jaw, and also occasionally a gland on the median line underneath the chin. Sometimes one and sometimes both sides are affected. It seems to me, if I were afflicted with this disease, I should want an operation which would cover at the first operation all those affected areas; and accordingly I have of late years extended the operation to include, not only the portion of the lip primarily affected, but to go beneath the chin and clean out the submaxillary region.

The specimen I have here illustrates the method. The operation, performed upon an old man, consisted first in an incision extending from one facial artery to the other along the border of the chin. The skin was dissected off from the bone and the submaxillary region on both sides thoroughly dissected out. The submaxillary gland on each side is accompanied almost always with lymphatic glands which are infected; this gland was removed, with the contiguous connective tissue and enlarged lymphatic glands. When one side had been dissected out and the dissection carried continuously with the mass of connective tissue supposed to include the lymphatic vessels up to the median line, the dissection was taken up on the opposite side and the gland removed on that side. Two large masses hung down from the median line and the usual V-shaped incision was now made, which was continued down to the point of the chin, and, last of all, the mucous membrane was cut through and the whole mass removed entire, so that we had the specimen as you see it removed in one continuous mass, that mass being supposed to cover the area of primary and secondary infection in this disease.

Dr. Whitney has prepared the specimen by the Kaiserling method. The submaxillary glands are pretty large glands, and it would seem as if the removal of so much salivary-secreting tissue would be a detriment to the patient; but I saw the patient to-day — the operation was done in October — and there has been no complaint of any absence of secretion in the mouth. The wound healed fairly well two-thirds of its extent. A sinus is still discharging on one side. I merely show the specimen to indicate the scope of what is generally considered a minor operation in surgery.

SARCOMA OF THE MESENTERY OF THE OECUM.

The other case I wish to show I was asked to see about six weeks ago in the out-patient department. A boy was apparently suffering from appendicitis. He had a small tumor at the McBurney point. The symptoms had lasted about a month and consisted chiefly of pain more or less intermittent at that point and febrile disturbance. The boy was supposed to be suffering from chronic appendicitis, was admitted to the hospital and kept under observation for about ten days during which time the symptoms gradually subsided although the local tumor remained. At the end of that time it was decided that an operation between the attacks should be performed. On cutting down upon the tumor at the usual point I found instead of suppurative inflammation a new formation. The tumor

lay at the ileo-cecal angle in the corresponding portion of the mesentery. The parts were more or less glued together and I was not sure that there was not a loop of intestine caught up by the gluing process. After taking it for a piece of intestine and drawing the bowel out, I put my finger under it and it turned out to be a very much enlarged appendix. It was as large as the thumb in its lumen. I cut off a piece of the tumor and submitted it to Dr. Whitney, and it was found to be a round-cell sarcoma with glands going back to the root of the mesentery. The ileum and colon were both cut through and the incision extended down to the farthest point of the affected part and a V-shaped mass of mesentery was removed including the cecum and a portion of the ileum. The very excellent drawing of my first assistant, Dr. Mosher, shows very nicely, here being the ileum and here the large intestine, here the appendix and here the mesentery. You would hardly recognize the appendix owing to its great size.

The ends of the bowel were united by the Murphy button, the boy's abdomen filled with normal salt solution, the incision closed and the boy placed in the Trendelenburg position. The case did well. On about the fifth day there was a rise of temperature; the temperature went up and down, remained down a day or two and began to rise again. One evening about a week after the operation I took out one or two stitches and passed my finger into the peritoneal cavity thinking there might be pus there. There was no pus. There was no abdominal infection whatever or distinct stitch abscess, but rather a superficial skin irritation. The wound has entirely healed and the boy is in excellent health. The button passed on the twelfth day. Fearing there might be some tendency to obstruction seidlitz powders were given in the early treatment of the disease to keep the feces fluid so that they should not thicken up and block the lumen of the button and we had numerous discharges from the bowel during the first week.

The patient is here on exhibition. Here is the button to show the large size used.

The question about recurrence now arises; and I think the prognosis is certainly not favorable owing to the extent to which the disease had grown. I propose now to put the boy on post-operative antitoxin treatment.

The patient has since taken the antitoxin, about two drops of unfiltered Coley solution being given and at present time, February 19, 1898, is in good health.

Clinical Department.

FOUR CASES OF RUPTURE OF SPINA BIFIDA SAC, THREE DURING CHILDBIRTH.¹

BY AUGUSTUS THORNDIKE, M.D.

My object in speaking of this accident to-night is not to recite the details of any unusual medical facts, but to study this little group of cases of rupture from the therapeutic standpoint, to inquire "How are we to meet this emergency as it suddenly confronts us?"

When one reflects that spina bifida is the commonest form of congenital anomaly of the spine, occurring

more than once in every thousand births; that the sac is frequently devoid of a covering of skin over the larger portion of its surface; furthermore, that this exposed membrane is extremely thin and delicate,—it is not surprising that rupture may occur. Nor do I believe it an unusual accident of childbirth, since I have myself been called to operate during the past four years upon three ruptures occurring during labor and one case of spontaneous rupture.

CASE I, seen with Dr. George Haven, had delivered itself in the Out-patient Department of the Boston Lying-in Hospital. Labor began at six A. M., May 31, 1895. The attendant came promptly when summoned, but arrived at nine to find mother, babe and placenta on the floor of the room. When I saw this child it was two days and a half old, and the leaking fluid had soaked the dressing with cerebro-spinal fluid twice a day. As it was already after sunset it was decided to await daylight; so the sac and surrounding skin were cleansed and a sterile gauze dressing applied with a bandage. Although the child was in good condition when I left, it had several convulsions in the night. The dressing and clothes were drenched in the cerebro-spinal fluid, and it died at five in the morning, presumably from direct septic infection of the spinal meninges.

CASE II was seen with Drs. Edward Reynolds, Harlow and Higgins. Since birth, that is for twenty-four hours, the sac, which was in the lumbar region and was partly collapsed, had been leaking slowly into a dressing. Through the wall could be felt one or two bands. The baby was etherized lying on hot-water bottles, the sac incised and a small quantity of reddish fluid evacuated. There were two bands running from the spinal opening to the wall of the sac, about one and a half inches long and as thick as a slate pencil; they were deep red in color, very soft, and did not look or feel like nerves; so they were divided. The healthy skin was incised around the base of the tumor and the dissection carried down to the sac wall, which was cut off and the edges tightly stitched together with catgut. The wound in the skin was closed by a second row of catgut sutures. During the night there were convulsions; and the child died thirty-one hours after operation, presumably of septic meningitis.

CASE III was seen with Drs. J. E. Cleaves and N. F. Chandler in Medford on April 9, 1897. Dr. Cleaves has given me the following notes of the confinement: The labor was a rapid one, and the child was born a few minutes before Dr. Cleaves arrived. As soon as the placenta and perineum were attended to the baby was seen and the sac discovered ruptured and collapsed. After washing with bichloride it was dressed with corrosive gauze. As the sac was quite long (six inches) it was folded over in the dressing and a snug bandage applied. I operated five hours later. The child, a large, healthy-looking baby, was lightly etherized lying with its stomach on a hot-water bottle (the water at 110° F.) and well covered to keep it warm. The dressing, which was perfectly dry, was removed, uncovering a pedunculated sac completely collapsed, covered with healthy skin except at a spot at the apex where there was a small tear. It was translucent, and no bands were seen or felt; I therefore assumed that no nerves were involved, that is, that it was a simple meningocele, and, surrounding the base by an elliptical incision, the sac wall was tied with a silk ligature, cut off, and the skin wound closed with

¹ Read before the Boston Society for Medical Improvement, November 15, 1897.

four silk sutures. This took but a few minutes and, after applying a large sterilized dressing, the baby was put in a warmed bed with heaters, and given with the medicine-dropper ten drops of brandy well diluted. Brandy was given every half-hour for four hours, then three times a day for three days. The wound united by first intention; there was no shock, and the baby nursed well.

I again saw the baby November 14th, aged seven months. Save for one attack of diarrhea in the summer, it has been well and is fat. The parents told me that, after healing, two little pimples had appeared near the wound, and discharged until July, when the silk ligature was removed and it healed.

CASE IV. Baby O'C., a seven months' premature infant, was born January 21, 1896, at the Boston Lying-in Hospital, and transferred to the West End Infant Hospital the next day, in the service of Dr. T. M. Rotch, who immediately called in Dr. R. W. Lovett. The infant was kept in the brooder and fed every hour. The tumor was the size of half a large orange, sessile, half covered with thin skin showing several ulcers, and the rest a very thin membrane.

As it was quite tense and the infant's condition did not warrant operation, Dr. Lovett aspired to reduce the tension and so avert rupture which seemed imminent. This procedure was repeated several times during the following week, but although it took a fair amount of food the weight decreased and the child seemed more feeble. On February 1st the sac ruptured and I was summoned as neither Dr. Rotch nor Dr. Lovett were within reach. The child was taken from the brooder and placed on the operating-table surrounded by heaters. No attempt was made to excise the tumor but two continuous silk sutures were quickly placed so as to close the rent tightly. On several occasions the dressing was soaked with urine; nevertheless the wound was closed and dry when the stitches were removed on the fifth day. On the seventh day there was a little moisture and collodion was painted on. The temperature, previously normal, rose during the day from 100° to 103° F. and death ensued on the eighth day after operation.

What conclusions are we to draw? Should one temporize? Should one operate? Let us again turn to these cases and see what is there for our guidance. The first case, leaking very moderately, remained unoperated and died in sixty-eight hours, several convulsions preceding death. Two other cases, which ruptured during childbirth, underwent an excision of the sac: one had leaked for twenty-four hours before operation, was closed by catgut sutures, it had two convulsions and died thirty-one hours afterwards; the other was ligatured five hours after birth and recovered, it had been prevented from leaking prior to operation.

The testimony so far is certainly in favor of early operation. How is it with Case IV? This was a feeble premature infant, eleven days old, with an ulcerated spina bifida ruptured two hours before operation. It was sutured, not excised, because of the feebleness of the infant. The baby died eight days afterward. I believe that the successful closing of the rent prolonged life and proved itself justifiable in spite of the very feeble condition of the patient. The evidence from these cases is, therefore, strongly in favor of operation; nevertheless, I have heard of a case which recovered without operation, but this must be extremely rare. The question when we should operate

is also plainly answered. Operate as early as possible in order to secure the meningeal cavity from infection and leakage.

The choice of the method of operating necessarily depends upon the size and shape of the tumor as well as upon the variety of spina bifida we are dealing with in any given case. Since the report of the London Clinical Society in 1885 it has been customary to speak of three varieties of spina bifida: (1) meningocele, with nothing but fluid in the sac; (2) meningo-myelocele, with nerves and sometimes the cord in the sac and usually attached to it; and (3) syringo-myelocele, or syringo-myelia, when the central canal of the cord is dilated and the sac-wall consists of the attenuated cord itself.

In meningoceles the operation of excision can be performed with comparative safety, especially if the opening into the spinal canal be small enough to close by a ligature and the skin be sutured over it.

In meningo-myeloceles the sac should be opened and the nerves separated from it and replaced before closing off the spinal canal; the neck of the sac should either be sutured or ligatured and the skin closed over the stump. Should it be impossible to separate from the sac-wall the nerves and cord, the collapsed sac should be tightly sutured and covered with skin by a quick plastic operation.

Simple suture of the sac may be done as in Case IV for syringo-myeloceles.

In operating upon the new-born and all small babies, the following precautions should be observed: light anesthesia, artificial warmth to the child's body, and as much celerity in operating as is consistent with a clean aseptic operation.

The prognosis in cases which rupture is bad; death is the rule, usually in three or four days. Still a few cases survive. Would there not be more recoveries if, as in Dr. Cleaves's case, a dressing could be applied at once in such a way as to stop the leak of cerebro-spinal fluid and keep the wound surgically clean? Later the spinal canal should be permanently shut off by an operation and protected from further infection by a skin covering. Upon the accoucher frequently rests the chief responsibility. There is no time to send for a consultant. He must act promptly at a time when the mother demands his best care; his object is to stop the leaking of cerebro-spinal fluid and prevent septic infection. He will therefore bear in mind that it is not sufficient to place a sterile dressing on the sac; he should do it in a way to stop the leak, and if the dressing fails to do this, a temporary ligature should be applied and a sterile dressing over it, for surgical experience has shown that a dressing soaked with serum affords a ready road for infection. This, of course, is merely giving temporary aid to the injured until such preparations as are necessary for an aseptic excision can be made.

From the obstetrical standpoint it is also interesting to note that of three cases which ruptured during birth, two were born before medical aid could reach them; the unusually strong pains of a rapid second stage probably caused the sac to burst.

INDIVIDUAL DRINKING-CUPS. — The Columbus (Indiana) Health Board has issued an order requiring the pupils of the public schools to provide themselves with individual drinking-cups.

MYOMECTOMY FOR FIBROIDS.¹

BY W. H. BAKER, M.D.

CASE I was kindly referred to me by Dr. Hall, of Revere.

Miss A. P. H. Examination March 5, 1897. Single, age thirty-six years. First noticed, two or three months before my seeing her, some difficulty in getting about on her feet. The soreness came on so that walking became painful. Pain and soreness on right side in groin was complained of. Pain in back occasionally when lying down and after defecation. Feeling of weakness and aching in back all the time. General health good. Catamenia began at fourteen; as a rule, occurred each three and one-half weeks; time, five days; amount, nine to ten napkins. Dysmenorrhea complained of for three menstrual periods after getting cold; never before or since. Leucorrhea not noticed. Never very strong. Appetite good. Digestion fair. Constipated. Micturition for two months past frequent. Sleeps well.

Diagnosis, fibroids of the uterus. Depth of cavity three and one-half inches, and bent backward.

The patient was engaged to be married, and did not wish to give up the hope of bearing children. She urgently requested me to save the uterus and ovaries for her if possible.

March 15, 1897, celiotomy was done. Five separate subperitoneal fibroids of varying sizes, from an orange of medium size to a small bean, were enucleated. The operation was tedious on account of the depth in the uterine wall of some of the fibroids, and my desire to remove all that I could of these growths. Uterus and ovaries saved. Incisions where fibroids were removed were sewed up with silk, and the abdomen closed as usual. Recovery excellent.

CASE II. Miss M. L. H. Examination November 3, 1897. Single, age thirty-six years. Troubled for more than six years. Treated for "uterine inflammation," and tumor was then discovered. Her physician reports that the tumor has been growing of late, and patient desires to get rid of it. Catamenia at fifteen, practically always regular; time, five to six days; amount, twenty to twenty-four napkins, which has always been her usual amount. Slight dysmenorrhea when younger. Considerable leucorrhea.

Diagnosis, multiple fibroids of the uterus; two distinctly felt in left of uterus, each the size of a walnut.

The patient's mind was in such a disturbed state from the knowledge of, and worrying over the existence of their growth, and from the fact that her family usually ceased menstruating very late in life, fifty years and over, it seemed best for me to remove them, even though small, for they naturally would have some sixteen years yet to grow. This patient strenuously objected to the removal of the uterus or ovaries, nor could I see why such operation should be done, although it might be the speediest method of operating.

November 10, 1897, celiotomy was done. Seven fibroids varying from the size of a pea to that of a walnut were removed by enucleation. Sites of tumors closed with silk. Recovering well.

A DEPARTMENT OF HYDROPHOBIA is to be added to the Institute of Infectious Diseases in Berlin, of which Robert Koch is director.

¹ Read before the Boston Society for Medical Improvement November 1, 1897.

Medical Progress.

RECENT PROGRESS IN OBSTETRICS.

BY CHARLES W. TOWNSEND, M.D., BOSTON.

THE INJURIES OF PARTURITION.¹

W. J. SINCLAIR, President of the Section of Obstetrics and Gynecology of the British Medical Association, delivered the opening address on the above subject at Montreal. He contrasts three periods in obstetrics: first, from the introduction of the forceps to the discovery of anesthetics, about a century; secondly, from the discovery of anesthetics to the introduction of antiseptics, a quarter of a century; and, thirdly, from the general introduction of antiseptics in midwifery practice to the present time, very nearly a quarter of a century.

In the first period he shows how slow the physician was to resort to forceps, preferring to allow the woman to linger for days rather than use this instrument, — with resulting sloughing and vesico-vaginal fistulæ. He quotes from Smellie, from Clarke and from Robert Collins.

The second period is represented by Mathew Duncan; and meddling midwifery is less clearly and emphatically denounced. Laceration of the perineum due to the forceps became much more frequent than under the old practice of delay; and, as it was quite unusual to suture these lacerations, incontinence of urine owing to vaginal sloughing was replaced by incontinence of feces resulting from complete laceration of the perineum.

In the third period the writer finds our modern textbooks are liable to mislead the young practitioner into practice actively harmful. In certain parts of England (in Manchester and the manufacturing towns of Lancashire), he asserts that the forceps are applied in 25 to 30 per cent. of the cases. He has been frequently told by practitioners in similar communities that half an hour only is allowed in the case of multiparæ for the second stage before applying the forceps. That this extraordinary state of affairs is due to the physicians and not the patients is shown by the fact that in the same locality the Manchester Maternity Hospital delivered 2,049 cases, with the use of forceps in 29 cases only, or 1.4 per cent.

The gynecological results of all this meddling midwifery, largely to save time, are very obvious.

The writer quotes German statistics, showing the rising protest there against the abuse of forceps. Thus, Wahl reports, in the Dresden Hospital, 9,061 cases of labor, with the use of forceps in 232, or 2.5 per cent. The final indication for resorting to forceps was always danger to the mother, to the child, or to both; and from three to four hours was the period allowed for the second stage of labor. The results were remarkably good.

THE PORRO OPERATION.

Dr. David Barrow² reports a case of this operation, with recovery of mother and child. The patient, nearly at full term, was found to have a large fibroid tumor filling the pelvic cavity, which it was impossible to displace upwards even by the use of firm pressure. Delivery was believed to be impossible except by surgical means. At eight and a half months the abdomen

¹ British Medical and Surgical Journal, September 4, 1897, p. 589.

² American Journal of Obstetrics, November, 1897, p. 677.

and uterus were opened. The child occupied the upper two-thirds of the tumor, and the lower one-third was a mass of fibroids. A living child, weighing six pounds, was delivered. The peritoneum on the lower anterior and posterior surfaces of the tumor was deflected, the vagina opened, and the whole mass removed.

DANGER OF GLYCERIN INTRA-UTERINE INJECTIONS FOR THE INDUCTION OF LABOR.

Stanton³ reports a case where the intra-uterine injection of two ounces of glycerin to induce labor caused most alarming symptoms of shock. The pulse went down to 40 or 50, was extremely feeble, and remained so for three hours, and the patient complained of severe pain in the head. He considers the method dangerous and has discontinued its use, although he had formerly recommended it.

HABITUAL ABORTION.

Charpentier⁴ considers four classes of patients are especially liable to repeated abortions. In the first class malformations of the uterus prevent its normal enlargement during pregnancy, and abortion is apt to occur as early as the second or third month. A second class abort on account of the abnormally displaced uterus. A third class show great congestion about the neck and body of the womb during pregnancy; they are apt to bleed easily and sometimes suffer from hemorrhoids. The fourth class are those in whom a tumor of the neck or body of the uterus is present. The treatment should be directed to removing the existing conditions which cause the abortion.

SPURIOUS ABORTION.

T. W. Eden⁵ defines this as a "development within the uterus, in the absence of uterine or extra-uterine gestation, of a membrane having the essential characters of the decidua of pregnancy and accompanied by the signs of early pregnancy, and its separation and expulsion from the uterus with hemorrhage, thus simulating an abortion."

The diagnosis depends on, first, the exclusion of uterine pregnancy by careful microscopic examination of the cast, which demonstrates the absence of chorionic tissues, and, secondly, the exclusion of extra-uterine pregnancy.

The writer considers two possible explanations of this mimicry of early pregnancy terminating in abortion: (1) That an ovum was actually fertilized, but perished at a very early period without leaving traces of its presence, while the "genetic reaction" in the uterus and in the general organism progressed as in developing pregnancy. (2) That some stimulus other than the presence of a fertilized ovum in the genital tract may lead to the formation within the uterus of a complete decidua, and may hold the menstrual functions in abeyance. The latter view he hesitates to accept at present, but it is a fact that the discharge of a decidual cast must no longer be regarded as a pathognomonic sign of extra-uterine pregnancy. The writer reports at length three cases of this affection.

THE DIAGNOSIS OF EARLY PREGNANCY.

T. W. Eden⁶ tabulates the physical signs of early pregnancy in the order of their occurrence as follows:

³ Loc. cit., July, 1897.

⁴ Gazette Hebdomadaire, No. 34, 1897.

⁵ British Medical Journal, November 20, 1897, p. 1488.

⁶ American Journal of the Medical Sciences, December, 1897, p. 687.

END OF SECOND MONTH (EIGHT WEEKS).

Breast signs (important only in first pregnancy).
Softening of cervix.
Distention of fundus.
Hegar's sign.

END OF THIRD MONTH (TWELVE WEEKS).

Breast signs (important only in first pregnancy).
Bluing of vaginal walls and cervix.
Softening of vaginal walls and cervix.
Uterus size of large orange.
Hegar's sign.
Uterine contractions.

END OF FOURTH MONTH (SIXTEEN WEEKS).

Breast signs (important only in first pregnancy).
A suprapubic swelling.
Uterus size of fetal head.
Uterine contractions.
Ballotement.
Vaginal and cervical bluing and softening.

PERIPHERAL NEURITIS CONNECTED WITH PREGNANCY AND THE PUERPERAL STATE.

E. S. Reynolds⁷ reports two cases of peripheral neuritis coming on during pregnancy and the puerperium, and similar to that found after taking alcoholic and other poisons.

He has collected 47 other cases from medical literature, and draws the following conclusions:

Etiology.—It is more common in multiparæ. Twelve of the 49 cases began during pregnancy. Of the cases beginning after delivery, in 16 symptoms appeared within the first week; in seven during the second week; in six during the third and fourth weeks; in two within the second month. In 15 cases there was a history of sepsis. In 11 there was marked and incessant vomiting of pregnancy. In four cases there was a distinct alcoholic history; and the writer questions whether more of the cases were not due to alcohol.

Symptomatology.—The case generally begins with sensory disturbances, numbness, tingling, hyperæsthesia, paresthesia, or severe pains, often shooting in character. This is soon followed or even accompanied by motor paralysis. In 23 cases both arms and legs were affected; in 15 cases symptoms were confined to the arms, in 10 of these being limited to one side. In 10 cases the muscles of the legs only were affected.

Prognosis.—In 14 cases there was either no recovery (death occurring fairly rapidly in a few cases) or only a partial recovery, some of the most severely affected muscles remaining permanently paralyzed. In 22 cases recovery was complete, and in 13 cases the termination is not recorded. In some, years may elapse before an absolute recovery takes place, so that treatment by massage, etc., must on no account be relaxed, but kept up for long periods.

Pathological Anatomy.—In several cases the nerves have been examined after death, and well-marked evidence of neuritis has been found.

ECLAMPSIA.

Dr. Adam H. Wright⁸ in describing the methods used in the Burnside Lying-in Hospital in Toronto, says, in regard to eclampsia, that he has found that morphine administered hypodermically subdues most quickly the excitability of the nerve centres. Chloral, he believes, is the best remedy to prevent recurrence of convulsions after they are to some extent brought under control. It is also sometimes useful as a preventive remedy when the symptoms of toxemia are severe and convulsive seizures are feared, but have not

⁷ British Medical Journal, October 16, 1897, p. 1080.

⁸ Loc. cit., October 23, 1897, p. 1159.

yet appeared. He sometimes combines the two remedies for severe convulsions, giving morphine hypodermically and the chloral by enema.

Chloroform sometimes has a good effect on the convulsions, but its administration has frequently disappointed him. Bleeding in properly selected cases he believes is of value. *Veratrum viride* he has used but little, and has not been favorably impressed by it. *Pilocarpin* he mentions, to give it his unqualified condemnation, considering it both uncertain and dangerous.

Wm. Warren Potter, M.D., in a paper before the American Association of Obstetricians and Gynecologists, laid down the following principles of the etiology and treatment of eclampsia. Particularly does he emphasize the fact that he takes issue with Charpentier on the subject of premature labor.

"(1) Though the pathogenesis of eclampsia is unsettled, it belongs solely to the pregnant or puerperal state. It is not apoplectic, epileptic or hysterical in character.

"(2) It depends upon toxemia due to overproduction of toxins and underproduction by the excretories.

"(3) These toxins probably have their origin in the ingesta, in intestinal putrefaction, in fetal metabolism — one or all — and there is coexisting sluggishness, impairment or suspension of elimination.

"(4) When the prodromes of eclampsia appear the kidney should be interrogated as to its functions and all symptoms carefully watched.

"(5) Treatment is (a) preventive, and (b) curative. Preventive treatment is medicinal and hygienic; curative treatment is medicinal and obstetric.

"(6) Milk diet and distilled water should be given in the pre-eclamptic state to dilute the poison, hasten its elimination and nourish the patient.

"(7) Blood-letting should only be employed in plethora or cyanosis. It is liable to cause anemia if persisted in or repeated, whereas red blood-corpuscles must be conserved, not wasted. Glonoin diminishes vaso-motor spasm, hence may be given freely in appropriate cases. *Veratrum viride* is a cardiac depressant and a dangerous remedy if pushed to an extent that will control convulsions.

"(8) Eclampsia is the expression of a further maternal intolerance of the fetus; hence, as a primal measure, the uterus should be speedily emptied of its contents.

"(9) Medicinal treatment alone is delusive, and when relied upon exclusively is fraught with danger both maternal and fetal, whereas in the prompt induction of labor is found a rational application of science to a desperate condition.

"(10) Finally, it furnishes, in the present state of our knowledge, the only basis of expectation for a diminished mortality in a toxemic disease of high death-rate."

A CASE OF INTRA- AND EXTRA-UTERINE PREGNANCY AT TERM.

Dr. Hubert A. Royster⁹ reports an interesting case in a colored woman, thirty-four years old, who was delivered at full term of a living child. The midwife reported that she "felt another child, but it would not come." On examination a living full-term fetus was felt in the abdominal cavity outside the uterus. Operations at once advised, but was refused until the weeks, when the fetus was dead and the

Journal of Obstetrics, December, 1897, p. 280.

mother was evidently on the road to death from sepsis. A dead, fully developed female fetus, weighing four and a half pounds, was removed by laparotomy. The placenta weighed two pounds, was adherent to the anterior abdominal wall, and to the left side of the pelvic brim. The patient made a good recovery.

A history of rupture allowing the escape of the fetus into the abdominal cavity was obtained from the patient. While squatting on the ground to urinate at about the end of the second month, she was seized with a sudden sharp pain in the right side which caused her to call for help. She fell in a half-fainting way, was carried into the house, put to bed, and in a few hours recovered. There was no external loss of blood.

TOXEMIA OF PREGNANCY.

Dr. Adam H. Wright¹⁰ enumerates as follows the main points in his treatment of toxemia of pregnancy:

(1) A carefully selected mixed diet, with plenty of water — plain, mineral, lemonade without sugar, etc.

(2) Rest, good hygienic surroundings, proper clothing.

(3) The regular and persistent use of purgatives for weeks or months, with a preference for epsom salts.

(4) A warm daily bath.

(5) The induction of abortion or premature labor in rare cases.

PLACENTA PREVIA.

Dr. W. H. Wenning¹¹ sums up the treatment of placenta previa as follows:

The tampon is indicated: (1) in hemorrhage toward end of pregnancy; (2) in the beginning of labor when the os is closed; (3) in moderate dilatation of the cervix — then use cervical tampon. Contraindicated: (1) when dilatation is complete or nearly complete; (2) when it fails to arrest hemorrhage, even when dilatation is not far advanced.

Rupture of the membranes is indicated: (1) when the os is well dilated, and either spontaneous labor or artificial delivery may occur; (2) when by this method hemorrhage is better controlled than by other means; (3) when in the absence of labor pains it will be followed by immediate pressure of the presenting part. Contra-indicated: (1) when os is undilated and pains good; (2) in faulty presentation of the fetus, unless it can be followed immediately by version.

Version is indicated: (1) when the os will admit two fingers and combined version can readily be done — Braxton Hicks's method; (2) when the os is well dilated or dilatable and hemorrhage is profuse — direct or internal version; (3) in desperate cases — *accouchement forcé*. Contra-indicated: (1) when with a moderately dilated os, combined version cannot be skillfully done (the cervical tampon); (2) when with a well-dilated os, after rupture of the membranes, the head immediately engages in the cervix.

In all cases strict supervision from the onset of labor to the end of delivery.

CONTRACTED PELVIS.

Dr. George W. Dobbin,¹² resident obstetrician at the Johns Hopkins Hospital, urges the routine practice of pelvimetry, as it will give us "(a) an accurate knowledge as to the occurrence and frequency of the various forms of pelvic deformity; (b) a better under-

⁹ Loc. cit., October, 1897, p. 456.

¹¹ Loc. cit., October, 1897, p. 513.

¹² Loc. cit., August, 1897, p. 145.

standing of our cases from beginning to end; and (c) enable us to offer a rational and sound explanation for many of the obstetrical operations we are called upon to perform."

Of 350 cases at the Johns Hopkins Hospital measured by him and by Mr. J. W. Williams, there were 40 cases of contracted pelvis. Fourteen, or 4 per cent., were found generally contracted; 9, or 2.6 per cent., simple flat; 14, or 4 per cent., flat-rachitic; and 3, or .85 per cent., irregular. Of these, 7.74 per cent. occurred among Americans, 18.32 per cent. among negroes, and 5.55 per cent. among the foreign born. Of these 40 cases, in 19 there was spontaneous delivery, while 21 required operative interference. Careful statistical tables of these cases are given.

Reports of Societies.

BOSTON SOCIETY FOR MEDICAL IMPROVEMENT.

JAMES G. MUMFORD, M.D., SECRETARY.

REGULAR Meeting, Monday, November 15, 1897, the President, DR. A. L. MASON, in the chair.

DR. W. H. BAKER spoke on the subject of

MYOMECTOMY FOR FIBROIDS.¹

Drs. A. L. MASON and H. L. BURRELL offered some remarks on

HYDATID CYST OF THE LIVER.

DR. J. L. MORSE presented

A STUDY OF THIRTY-SEVEN FATAL CASES OF CIRRHOSIS OF THE LIVER.

DR. A. THORNDIKE read a paper on

SPINA BIFIDA RUPTURED DURING BIRTH, REPORT OF FOUR CASES.²

DR. MUMFORD: If it is in order, I should like to ask Dr. Thorndike what would be his time of election for operating in case of non-ruptured spina bifida?

DR. A. THORNDIKE: I think that depends entirely on the condition of the sac. If one can afford to wait until the child grows to be six months or a year old without too much danger of rupture, it is best to do so, but oftentimes there is such an extremely thin membranous sac that the danger of rupture is imminent and it seems wiser in those cases to perform an operation early. If the sac be entirely covered with skin and not increasing perceptibly, many surgeons prefer to wait till the child is several years old (five to ten) in order to give nature a chance to produce a spontaneous cicatrization and contraction of the tumor, which certainly does happen in a small proportion of untreated cases.

DR. J. P. CLARK read a paper on

COMPLETE CONGENITAL OCCLUSION OF THE POSTERIOR NARES, WITH THE REPORT OF A CASE.³

DR. CLARK: I thought the Society would be interested in seeing the patient whose case I am going to report this evening — complete congenital occlusion of the posterior nares, which is a very rare condition.

You see the patient is rather undersized. She has the facies which is generally associated with the presence of adenoids; and which is a result of constant obstruction of the nasal respiration. The character of the voice has not been altered by the operation. It may improve, but it has not improved yet. This may be due to the fact that the naso-pharynx is still very small and the arch of the palate is very high. The examination of the naso-pharynx with the rhinoscope here without a good light would be difficult and probably unsatisfactory. There is some obstruction in the left nostril due to deviation of the septum, which may need correction, but for the present I shall let it alone. As you see she can breathe perfectly well with the mouth closed. (The patient pronounced the words January, February, etc.) You see the voice has rather a nasal quality still. It has not improved any as yet. She is going to a dentist, who thinks he can do something to widen the alveolar arch, and possibly in that way improve the voice. She hears perfectly well.

DR. LANGMAID: I think that these cases may be more common than we have any knowledge of. I have seen four. I cannot say they are exactly like the cases spoken of in the paper, because they were not cases of bony occlusion — at least, they could not be made out to be. I operated on two cases. I think Dr. Coolidge assisted at one where there was complete congenital occlusion, and he was kind enough some years afterwards to find the child and ascertain whether the nares were still patent; and they were found to be so. The oldest case I have seen was one at the Massachusetts General Hospital. I cannot remember the exact age, but perhaps fourteen years. The youngest was a nursing baby. That child was to come for operation, but I have never seen it since. One of the cases I was able to follow for many months and the nares remained, as I said, open; the other case was lost sight of. The case I operated on at the Children's Hospital — the first one I referred to — was not for bony occlusion, although I remember when the trocar was put in that there was a creaking sound. It was not soft tissue; it felt like cartilage, or as cartilage would feel if one put a trocar through it. With the exception of the nursing baby, the three cases, I think, showed a lack of development of the nose. Dr. Coolidge will remember that the nose was undersized, and that the nares after the operation were smaller than they should be, but perhaps quite as large as was possible with that size of nose. The young man of fourteen had also an undeveloped nose. These are congenital. The two cases I operated on were not bony — whether the other cases were I do not know; but they were congenital occlusion of both nares.

I have always been interested in the etiology of these cases. It is possible, of course, to think that there may be hypertrophic extension of the bone without any other morbid process, without ulcerative process; but as it happens the cases I have seen have had undeveloped noses, and I have wondered whether there had not been an ulcerative process there which had occluded the nose, and that the lack of function of the nose had prevented its growth.

With regard to the cases being so necessarily fatal, I do not know about that. Of course, it would be difficult for a child to nurse, and it would interfere with the physiology of respiration, as Dr. Clark has said; but it seems to me stating it rather strongly, that the child could not live. I don't think there is any doubt

¹ See page 180 of the Journal.

² See page 178 of the Journal.

³ See page 171 of the Journal.

that the nares should be opened just as soon as possible, and it is interesting to know from the few cases I have seen and read of that there has been very little difficulty in keeping the nares open afterwards. I should object strongly to using the galvano-cautery. We know the great tendency to the adhesion of the walls after the actual cautery has been used; and I think Dr. Clark's procedure was much better, because a channel is cut out, a core removed, and the wound heals, in my experience, much faster than after that made by the galvano-cautery.

DR. COOLIDGE: I expect to say something about this case in a paper which I hope to read before this Society later in the year. The thing that was especially interesting to me is the fact that the septum had a marked deviation, as a great many have, and that the turbinate bone of the concave side was enlarged to fill that concavity of the septum. That is something we see in a very large number of noses. The etiology of this enlargement of the turbinate has been described as due to currents of air which passing through the unobstructed side by inflammatory processes or diminished tension make the turbinate enlarge. Here was a case in which the septum was deviated and the turbinate enlarged in the way we expect to find it, but in which there had been no currents of air.

DR. LANGMAID: I should like to ask if the external nose was well shaped?

DR. CLARK: Yes. There is a slight prominence near the junction of the nasal bones with the cartilages, due probably to the injury she received when a child.

DR. LANGMAID: Of course my cases were not those of bony occlusion, but cases of occlusion of the nose, and were related as such.

DR. CLARK: In regard to defects of hearing in these cases, Schroeder mentions the drum being retracted and the hearing impaired. In the other cases where the hearing is mentioned it is said to be unaffected. In a number of cases the hearing was not mentioned, and I took it for granted it was not affected in those cases.

It would have been impossible, I think, to have punctured these occluding walls with anything but a trephine or chisel. It would not have been possible to force the trocar through. As regards the cases in literature, the larger number of them are bony occlusions. Membranous occlusions are much less common.

MEDICAL SOCIETY OF THE STATE OF NEW YORK.

NINETY-SECOND ANNUAL MEETING, ALBANY, JANUARY 25-27, 1898.

(Concluded from No. 7, p. 160.)

THE PAST, PRESENT AND PROSPECTIVE METHODS OF TREATMENT OF INSANITY IN THE STATE OF NEW YORK.

A PAPER with the above title was read by DR. P. M. WISE, of Albany, in which, after briefly reviewing the treatment of the insane employed in the past, he criticised the medical schools for giving so little instruction on the subject, and referred to the lack of interest shown by physicians throughout the State in the hospitals maintained by it. He referred to the large number of patients which had been discharged cured from the State hospitals during the past year, and said that this was due to the rational methods of treatment

now employed — the removal of active causes, that is, toxins, irritation of the nervous mechanism from all causes, the improvement of the general health, and the development of all bodily structures to a normal condition of resistance.

DR. LANDON CARTER GRAY, of New York, agreed with the author that many improvements had been made during recent years in the State insane hospitals, but said there was some inherent defect in the system, for, in spite of the fact that the State spent many millions each year on its asylums, no new discovery in the pathology of therapeutics of insanity had been made by any one connected with them. He attributed this to the fact that these hospitals are situated in isolated places, away from medical centres, and that the members of their staffs do not come in contact with the neurologists. He also thought that the immense amount of clinical material which these hospitals contain should be made use of in all medical schools where instruction in mental disease is given.

DR. WISE agreed with the last speaker in regard to this clinical material being made use of, and said that the Lunacy Commission was making efforts to bring about this end.

AFTERNOON SESSION.

DR. J. E. WALKER, of Hornellsville, then read a paper on

ACTINOMYCOSIS.

Several cases were narrated in which good results had followed the administration of iodide of potassium in large doses. The importance of early diagnosis was emphasized, and extirpation of the diseased tissue advocated wherever this was possible.

DR. A. M. PHELPS, of New York, referred to cases of Pott's disease due to actinomycosis.

DR. HERMAN MYNTER, of Buffalo, read a paper entitled

A YEAR'S WORK IN APPENDICITIS.

Three classifications of the disease were made, namely, (1) simple catarrhal appendicitis; (2) ulcerative appendicitis, with or without perforation; and (3) septic appendicitis, with or without abscess. The fact was brought out that more deaths occur from appendicitis than from any other abdominal disease. The prognosis is unfavorable when the case is treated medically, the death-rate being between 16 and 20 per cent., and of those who recover 50 per cent. have relapses. The mortality in cases treated surgically depends absolutely upon whether or not operation is done early. Operation before the third day was advocated.

DR. WILLIAM B. JONES, of Rochester, followed with a paper entitled

LESSONS FROM SIX CASES OF APPENDICITIS.

Operation was advised in all cases where no improvement has taken place at the end of the first twenty-four hours.

DR. WILLY MEYER, of New York, was opposed to immediate operation, but thought that every case of appendicitis should be watched by both physician and surgeon. The pulse-rate is a better guide to the condition than is the temperature. If the former increases while the temperature remains at 99° or 100° F., this is an indication for operation.

DR. A. M. PHELPS, of New York, then read a paper on

CONGENITAL DISLOCATION OF THE SHOULDER BACKWARDS, WITH A REPORT OF SEVEN CASES AND AN OPERATION FOR ITS RELIEF.

The author's first case of this kind was brought to him in 1895, at which time only six similar cases were on record. The dislocation in such cases is not always recognized, and the condition is attributed to paralysis dating from birth. The author considers the dislocation due to direct violence on the part of the accoucheur, as he discovered evidences of fracture of the glenoid cavity in the cases upon which he has operated. The operation is as follows: An incision is made along the posterior border of the deltoid, the capsule of the joint is incised, the new articulation beneath the scapula cut away, the dislocation reduced, a drainage-tube is inserted and the wound closed. In long-standing cases it is generally necessary to remove part of the head of the bone in order to make allowance for the shortening of the muscles. The arm should be put up in a rotated position with the hand well out and also rotated.

DR. REGINALD H. SAYRE, of New York, followed with a paper on

THE TREATMENT OF RACHITIC DEFORMITIES.

The author recommended that the child should be taken off its feet and the limbs put up in plaster-of-Paris during the stage in which the bones are soft. Marked deformity after the bones have become hard should be corrected by breaking the bone and putting the limb in plaster. Proper diet, hygienic conditions, and constitutional treatment were also advised.

DISCUSSION ON THE MANAGEMENT OF HYPERTROPHY OF THE PROSTATE GLAND AND ITS COMPLICATIONS.

This was opened by DR. L. BOLTON BANGS, of New York, with a paper entitled

GENERAL CONSIDERATIONS AND CATHETER-LIFE.

The following causes of hypertrophy of the prostate were given: (1) masturbation in childhood, (2) early association with lewd women, (3) adultery and fornication, (4) venereal excesses, (5) methods employed to prevent impregnation of the female. The importance of sterile catheterism was especially emphasized.

DR. S. ALEXANDER, of New York, read a paper on **PROSTATECTOMY AND PROSTATOTOMY, SUPRAPUBIC AND PERINEAL,**

in which he gave the results obtained in 205 cases by operation. Of these 21 per cent. died and 62 per cent. recovered with power of voluntary urination, the remainder not regaining this function entirely. The author prefers the suprapubic operation except where drainage is required. The condition of the kidneys is an important factor in determining the result.

DR. WILLY MEYER, of New York, continued the discussion with a paper entitled

BOTTINI'S GALVANO-CAUSTIC RADICAL TREATMENT, AND THE PALLIATIVE TREATMENT FOR HYPERTROPHY OF THE PROSTATE.

The author advocated this treatment before operation was resorted to and exhibited the instrument. It

consists of a metal sound in which is a hidden blade of platinum which is made to emerge by means of a screw at the lower end of the instrument. The bladder is first emptied and the urethra cocaineized; the instrument is inserted, the current having previously been turned on, and two or three grooves are made by the knife in the enlarged prostate.

DR. L. S. PILCHER, of Brooklyn, then read a paper on

CASTRATION FOR THE RELIEF OF HYPERTROPHIED PROSTATE,

in which he recommended this procedure in preference to prostatectomy or prostatotomy, as requiring much less skill and giving excellent results.

DR. E. L. KEYES, of New York, closed the discussion with a paper entitled

STONE ASSOCIATED WITH HYPERTROPHY OF THE PROSTATE,

in which he advocated suprapubic lithotomy and partial prostatectomy in this condition.

DR. SAMUEL LLOYD, of New York, exhibited a patient upon whom he had performed

EXCISION OF THE FIBULA FOR SARCOMA.

The patient, a young woman, twenty-two years of age, is now in good health and walks without difficulty. There was a history of injury occurring eight years previous to operation. Injections of the toxins of erysipelas and prodigiosus had been employed, but they had no effect upon the disease.

EVENING SESSION.

THE OBLIGATION OF THE PHYSICIAN AND THE LAYMAN TO EACH OTHER

was the subject chosen by the President for his Anniversary Address.

He said, in part: There is a general tendency affecting all grades of people toward that which will create a sensation, and the advancement of science having disturbed very materially our old creeds, we have been disposed to accept those which seem newer and which possess a larger amount of the marvellous. . . . The old-time doctor is passing away, and, in his place, we have the up-to-date medical man who, having imbibed his share of the spirit of the times, is losing in many respects more than he gains.

There is an unidentified something in the make-up of the medical man which you do not find in any other class of citizen. I speak of that jealousy which exists as between himself and his brother practitioner and which makes him give free medical attendance to a patient who is not able to pay the fee demanded by him but who is able to pay a smaller fee to his less successful brother. I doubt very much if any legal act could be devised to meet the emergencies presenting themselves to us in this question; but if the medical profession would, as a body, respect the rights and privileges of each and every individual member of their august body, and would see to it that no act of theirs should tend to jeopardize the interest of another, *then* would come the solution of this entire difficulty without the intervention of the law.

I am not a believer in reducing the practice of medicine to the status of a trade; I do not believe that the profession should organize itself into a trades-union for the furtherance of the interests of its members profes-

sionally, politically and financially; but I do believe that there should be that honesty and respect of others' rights which should make men know the justice or injustice which has been dispensed to their predecessors before serving in the capacity of successors. My special point is that if we do not sustain honorable members in their expectation of just and courteous treatment, we injure and degrade the profession itself.

It belongs to this Society to take the initiative in the correction of abuses where discovered and in the introduction of real improvements.

With the hope that I have convinced you of the honesty of our purpose and that we are working for the good of the community and of the State at large, let me beg of you to go out from this hall determined to use all the influence at your command for the furtherance of honest medical charity and the destruction of quackery in all its phases.

THIRD DAY. — MORNING SESSION.

The Nominating Committee recommended that the following officers be elected for the coming year: President, Dr. John O. Roe, of Rochester; Vice-President, Dr. E. F. Brush, of Mt. Vernon; Secretary, Dr. Frederic C. Curtis, of Albany; Treasurer, Dr. C. H. Porter, of Albany.

Dr. T. D. CROTHERS, of Hartford, Conn., read a paper on

THE TREATMENT OF DELIRIUM TREMENS.

The condition was described as being due to alcoholic injury to the brain centres, to the action of bacteria, and to auto-intoxication in various constitutional diseases. The induction of sleep is the principal indication in treatment. It was recommended that no powerful opiates or hypnotics, chloral especially, be employed. No alcohol should be given. Cardiac stimulants are dangerous and should not be employed. As elimination is of first importance, the hot bath is the essential and free diaphoresis should be encouraged for two or three days. The administration of calomel, followed by salines, has a beneficial effect. The strait-jacket and confining bands are not to be employed. If restraint is necessary, it should be mild and alternated with liberty, the patient being permitted to walk about in order that he may work off the muscular excitement. Little or no food is needed until the period of excitement has passed off. The author referred to the many deaths which occur in station-houses, in persons found in the street in alcoholic coma, and expressed the belief that the fatal result is due to the opium which is given them.

Dr. H. S. DRAYTON, of New York, then read a paper entitled

INTRA-TRACHEAL INJECTIONS FOR DISEASES OF THE BRONCHIAL-TUBES AND LUNGS.

When first introduced by Dr. Horace Green, of New York, in 1840, this method of treatment was denounced as cruel and much adverse criticism was directed against it. It has been shown, however, that the pulmonary mucous membrane can and does absorb fluids without interfering with respiration and without causing irritation. The technique is not difficult, a steady hand, a knowledge of the laryngeal region, good illumination and practice, being all that is necessary, for the manipulation of the instruments requires no special skill. The syringe devised by Dr.

Joseph Muir, of New York, is employed. It consists of a glass barrel, holding half an ounce, to which is attached a curved metal tube. A spray of cocaine may be used if there is any irritability of the throat. The tube is best introduced with the aid of the mirror, owing to the tortuous course of the canal. Three injections of one drachm each are given at each sitting; olive-oil, glycerin, menthol, eucalyptol, and other remedies may be employed in this manner.

The newly-elected President, Dr. ROE, was then introduced, and, upon taking the chair, said: Ever since I was first sent as a delegate to a meeting of this Society, nearly twenty years ago, it has been my privilege to attend its annual meetings, and I trust that I may be able to return to its general stock of medical knowledge the profit which I have acquired in so doing. I will endeavor to show my appreciation of the preferment shown me by my zeal in the future, and, with your assistance, I shall try to make the next meeting as successful as have been those in the past. I thank you cordially for the honor conferred upon me and wish you all a year of health, happiness, and prosperity.

Recent Literature.

Spinal Caries. By NOBLE SMITH. London: Smith, Elder & Co.

This little treatise has much to recommend about it. It is compact, and says what is important for the practitioner to know.

The text indicates familiarity with the literature of the subject on the part of the writer, and experience in the treatment of cases of this affection.

The chief defect of the book lies in the illustrations. The writer in the preface claims for these the merit of original draughtmanship; and he writes that he hopes he has in all cases correctly represented the subjects which are before him, "whether these have been patients, or morbid preparations found in museums." In this he can hardly be said to have succeeded, if humanity in England resembles in its anatomy and pathology humanity elsewhere. Selection and value of the fine line give charm to etchings, as our colleague, Seymour Hayden, and his great master, Whistler, have taught us. Yet this form of art is not successful in the illustration of gross pathology, judging from Mr. Noble Smith's book, and "impressionism" is not trustworthy in medical pictures. We know that Mr. Smith is more successful as a surgeon; he is painstaking as an artist; but we would suggest that in the next edition of his work he rely on photographs for his illustrations.

The Menopause. By ANDREW F. CURRIER, A.B., M.D. Pp. 309. New York: D. Appleton & Co. 1897.

This little volume is written to the texts that the menopause is not ordinarily the source of any very great or important disturbances; that when symptoms of any importance occur they are pathological and demand careful diagnosis; and that the lesions which cause symptoms are mainly surgical, and should receive surgical treatment. The book extends over 309 pages, and the only adverse criticism that can be made is that had it been compressed into an article of from 30 to 40 pages, it would have been an admirable résumé of the subject.

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ANNUAL REPORT OF HARVARD COLLEGE, 1896-97.

THIS report contains the usual facts and figures, with some variations, in regard to the academic and the other departments of Harvard University, technically and officially known as Harvard College. The most interesting and unusual feature is to be found in the report of President Eliot, and consists in a suggestion that degrees might with advantage be conferred twice instead of once a year — after the mid-year examinations as well as at Commencement.

There are doubtless men who pride themselves upon their "undivided and undiluted allegiances" — whatever that may be — and others who seek to foment feelings and prejudices rather than reason and understanding, who will see in this suggestion of the President's another Machiavellian scheme for degrading the college over which he presides and exalting the schools over which he also presides, and who will brace themselves accordingly for the continued struggle against their mighty and sleepless "foe." Such men must be left to their sanguinary reflections. Let us turn our attention to the other kind of man who shows a disposition to dispense information and reason.

The President gives his reasons for suggesting this change, and they are for the most part found in the following paragraphs:

"The English and German universities count residence by the term or semester, and confer degrees several times during the year; and in this country the University of Chicago has set an example of conferring degrees four times a year. It has been the practice of Harvard from its foundation to confer degrees only once a year — a very natural practice so long as residence was counted only by the year, and a specified length of residence was the most important qualification for the degree. But now that the passing of examinations on a definite number of courses or half-courses of instruction has become the most important qualification for a degree, some reasons come into view for conferring degrees twice a year. The requirement for the degree of Bachelor of Arts being to pass the examinations in eighteen full courses of study, persons who have passed in sixteen courses within three years have before them but a scant

half-year's work; yet they must wait a whole year to get the degree. Again, short-residence students who seek a degree from Harvard may easily find one year too short to accomplish their purpose and yet two years may be too long. They could attain their desire in a year and a half. When students in college suffer some prolonged illness, which makes it impossible for them to pursue their studies for three or four months, they generally have to spend an extra year in attaining their degree, although the real loss of time was less than half a year. When a young man has failed to obtain his degree in four years through some neglect of duty, or through misfortune, he is now obliged to wait for his degree until the end of a fifth year, although his deficiencies may amount to much less than a year's work. In all these cases there would be great advantage in a second date for conferring degrees, a date not far removed from the 10th of February.

"The feasibility of making good use of a half-year in the college, scientific school, or graduate school would depend upon the number of half-courses offered in the first half-year and on the distribution of these half-courses between elementary and required subjects and among the different divisions."

"In considering the expediency of instituting a mid-year date for conferring degrees, it is necessary to inquire not only what facilities exist within the university for bringing the course for a degree to a close at the middle of the year, but also what use of the subsequent half-year the student graduated in February could make. The professional schools of the university now begin their courses of instruction in the autumn chiefly; but the spring half of the academic year could be utilized very well in the Divinity School and fairly well in the Medical School, on account of the multiplication of laboratory courses in the latter school. For a young man taking the degree of Bachelor of Arts and intending to be a teacher, the spring and summer which he did not need at Cambridge could be well used in Europe, or in professional observation and practice at home. The interval between the 1st of February and the 1st of October would be a convenient one for any young graduate who wished to improve himself by foreign travel before settling down to the study of a profession. Young men who were going into business might, after taking their Bachelor's degree in February, have better opportunities of getting employment in the spring than they ordinarily have in the summer. Graduates of the Scientific School looking forward to getting positions in machine shops, factories, railroads, or on engineering works in progress, might be better able to find places in the spring than in the summer. Occasionally, even degrees in Theology, Law or Medicine might be taken with advantage, under exceptional circumstances, at the mid-year Commencement. The degree of Master of Arts and the doctorates might often be taken advantageously at that time of the year."

It is to be noticed that the President, with an absolutely cold-blooded and impartial malignancy, seems quite as willing to aid in "degrading" the schools as the college. The proposition will undoubtedly excite discussion, the outcome of which may be awaited without "feeling," nay, even with calm.

The College proper, the Scientific, the Graduate, the Law, the Medical, the Dental Schools are all increasing in numbers from year to year, and in general are in a flourishing state. Benefactions, after several years of decrease, have begun again to increase.

In the Medical School there were 600 men in attendance during the past year, of whom 50.32 per cent. presented a degree in letters, science or medicine; after the year 1900 all entering students must present such degrees. There were 101 applicants for the degree of M.D., of whom 80 were rejected and 71 graduated; of these 71 graduating students 29 received the degree *cum laude*. Four new scholarships, with an annual income of \$200, were established during the year, and the School now offers 19 scholarships.

The only important change made in the course of instruction was the addition of clinical microscopy to the list of electives in the fourth year. The work in experimental physiology required of first-year students has been increased sixfold. With the constant development in laboratory instruction and research the laboratories of the school are every year less and less sufficient for the increasing demands made upon them. The present building and grounds are too restricted for the immediate future. On the other hand, the clinical departments demand a hospital under control of the School and the University. The whole is a large subject, but must eventually be considered as one problem.

The year has been a prosperous one for the Dental School, which had 132 students, an increase of twenty-nine over any previous year and this notwithstanding additional requirements of entrance examinations and higher fees.

The Veterinary School is diminishing in the number of its students. There were only fifty-two in attendance, of whom six were special students, and this year there are still fewer; it is moreover not self-supporting. This state of things is due largely to increased competition under better endowment, but it necessitates consideration of some plan of re-organization by which this school may be incorporated in a department of higher instruction.

GLYCERINATED VACCINE LYMPH.

In behalf of the Local Government Board of England Drs. Thorne and Copeman have recently made a tour of inspection of the vaccine establishments of Paris, Brussels, Berlin, Dresden, Cologne and Geneva. The special point of investigation was the method by which the lymph was prepared and stored.

In a report (1896) to the German Government made by Professors Koch, Pfeiffer, Frosch and others, the desirability of using calf lymph which had been treated with glycerine was presented, and in the previous Local Government Report Dr. Copeman had shown a series of photographs which proved very conclusively that vaccine treated with glycerine and stored for several weeks became practically sterile.

The bacteria which appeared in large numbers in the lymph untreated with glycerine, or during the first weeks after being so treated, had fewer and fewer organisms develop as time went on, until at the end of four weeks all agar-agar plate cultures were sterile.

In Paris alone of the cities visited was it found that there was then any use of the crude lymph. There it was customary on the outbreak of small-pox to take a calf directly to the place and vaccinate all the inhabitants by a direct calf-to-arm method. This practice was considered advantageous in many ways, by MM. Chambon and Ménard; one being, that by the rather novel method and also the sight of the source of the vaccine lymph, many persons consented

who would otherwise have escaped vaccination. All the other cities used only the glycerinated lymph, as was also the case in Paris for all material stored for general distribution.

The advantages of the glycerinated lymph are briefly as follows:

It is much cheaper than the usual methods of storing upon a quill or ivory point, or even as crusts. One calf furnishes about 300 points, while the same animal, if the lymph was treated with glycerine, would furnish material for 4,000 to 6,000 vaccinations. The glycerinated lymph is said to last longer at ordinary conditions, give better results than the lymph stored in the old manner, and to be free from nearly all bacteria.

It is interesting to know, that at least one of the vaccine stations in this immediate vicinity is making use of this method, by which the risks of the introduction of other material than vaccine virus are reduced to a minimum. Considering that this method has been adopted on the continent of Europe for several years, the question arises, whether the State, even at the risk of the charge of paternalism should not make it its duty to keep the sources of supply up to the standard of the best.

THE SPOONER BILL AND THE NEW YORK ACADEMY OF MEDICINE.

At a meeting of the New York Academy of Medicine held February 17th the Committee on National Public Health, through its chairman, Dr. Richard H. Derby, reported resolutions to the effect that —

Whereas, The happiness and physical well-being of a people and the business prosperity of a country depend on the wisdom, force and execution of the sanitary laws; and,

Whereas, A diversity of opinion and a division of responsibility, without co-operation in sanitary measures, cause confusion in the effort and defeat in the practice of sanitary aims; and,

Whereas, The medical profession of a country are the proper custodians of its health: therefore, be it

Resolved, That the Fellows of the New York Academy of Medicine do earnestly recommend the establishment of a bureau of health, with the power to administer within constitutional limits the sanitary needs of the United States.

Resolved, That copies of the foregoing be sent to the New York Chamber of Commerce and to the New York Board of Trade and Transportation.

The resolutions were unanimously adopted. Additional resolutions, reported by Dr. Derby, were also adopted, approving the bill introduced into the United States Senate by Mr. Spooner, which provided for the creation of a national Board of Health, in substantial accordance with the recommendations made by the Academy to Congress a year ago. The resolutions at the same time condemned the bill presented by Senator Caffery.

A committee was then appointed to go to Washington and urge the passage of the Spooner bill. Its members are Dr. E. G. Janeway, President of the Academy, Ex-Presidents A. Jacobi and J. D. Bryant, and Drs. T. Mitchell Prudden and Richard H. Derby.

MEDICAL NOTES.

A MEDICAL SENATOR.—Dr. Samuel Pozzi, the eminent French gynecologist, has been elected Senator for Dordogne.

THE MIDDLETON-GOLDSMITH LECTURE OF THE NEW YORK PATHOLOGICAL SOCIETY, on the subject of "The Establishment and Conservation of Purity in Public Water-Supplies, especially those of Great Cities," will be given in the hall of the Academy of Medicine on Friday evening, February 25th, at 8.30 o'clock, by Prof. William T. Sedgwick, of the Massachusetts Institute of Technology.

THE SURGEONS AND THE ALIMENTARY CANAL.—Close upon the announcement that Schlatter has removed successfully the entire stomach comes the report of the removal of about half the large intestine by Frederick Treves. We have not yet learned of the successful removal of the entire small intestine, but have no doubt that it will be performed in due time. Where both ends of a citadel have been taken it is certainly reasonable to suppose that the centre may be captured if the attack is vigorously kept up.

KIPLING'S ESTIMATE OF PHYSICIANS.—Rudyard Kipling, the poet novelist, in an after-dinner speech at a banquet given in London to Sir William Gowers not long since, paid a graceful tribute to the heroism of the medical fraternity. He had mixed with doctors, he said, the world over, and had seen them going to certain death with no hope of reward. He had seen them handling cholera and small-pox, and, when dying therefrom, telegraphing for a substitute. He had seen them, in America, manage a practice twenty miles in each direction, driving horses through eight feet of snow to attend an operation ten miles away, digging their horses out of the snow and then proceeding on their way. Mr. Kipling declared that it was one of the proudest things of his life to have been associated with "real fighting men of this class."—*Medical News*.

BOSTON AND NEW ENGLAND.

ACUTE INFECTIOUS DISEASES IN BOSTON.—For the the week ending at noon, February 23, 1898, there were reported to the Board of Health, of Boston, the following numbers of cases of acute infectious disease: diphtheria 29, scarlet fever 11, measles 26, typhoid fever 4.

ONE OF THE OLDEST MEDICAL GRADUATES.—Dr. Charles Amory, who died in Boston on February 10, 1898, was graduated from the Harvard Medical School in 1832. He was with one, or possibly two, exceptions, the oldest medical graduate of Harvard at the time of his death.

A WARNING.—A beggar has been frequenting the offices of physicians in Cambridge, exhibiting a recommendation of the bearer, Mr. D. E. Simmons, written on a stolen blank of Dr. A. H. Tuttle and signed G. H. Tuttle, M.D. We are requested to warn the public against this person.

THE NEW MEDICAL BILL.—On February 18th a hearing was given by the Committee on Public Health of the Massachusetts Legislature, on the bill presented by the State Board of Registration in Medicine for the further restriction of medical practice in that State. Dr. E. B. Harvey, Secretary of the Board, presented the bill, and its passage was advocated by Dr. E. W. Cushing, Dr. John F. Sutherland, and Dr. F. W. Draper, of Boston, and Dr. A. P. Clarke, of Cambridge. The bill was printed in full and commented upon editorially in our issue of January 20th.

NEW YORK.

ANNUAL ALUMNI DINNER.—The annual dinner of the alumni of the various departments of the University of the City of New York, held at the Savoy Hotel on the evening of February 18th, was the largest in the history of the institution. About seven hundred alumni participated and the banquet was presided over by Chancellor McCracken. In the list of toasts Dr. Edward D. Fisher responded for the Medical Department.

EXPERT TESTIMONY.—The Committee on Expert Testimony, of the New York Academy of Medicine, appointed in June last, presented a report of progress, which was signed by Drs. M. Allen Starr, Stephen Smith, George L. Peabody, J. H. Gardner, Charles L. Dana, H. C. Coe, H. M. Biggs and E. G. Janeway. It declared that any measure looking toward a reform in the present methods of giving expert testimony should seek to accomplish three objects: To establish a standard of excellence, to secure the appointment of experts by the presiding justice of the court, so that the expert should have a judicial function and be free from bias, and to provide that fees should be fixed by the court.

DEFECTIVE VISION AMONG CHILDREN.—The Annual report of the State Board of Health was transmitted to the governor on February 15th. A portion of it is devoted to defective vision among children. "It has been deemed expedient by the Board," the report says, "to provide a method of testing the eyes of school children. Defective eyesight is largely on the increase in this country. This may be due in a large degree to the failure of parents to discover such defects when they may be easily corrected. The plan adopted provides for a test by the principals of schools, who shall report all defects to parents, and recommend consultation with a physician."

ANTITOXIN.—In treating of the matter of antitoxin the report declares: "It will be the aim to examine all antitoxin offered for sale to secure uniform potency in all preparations of this remedy. The chemical work of the Board should be conducted on a larger scale."

REGULATION OF DISPENSARIES.—On February 16th a hearing was given by the joint Legislative Committee on Justiciary at Albany to representatives of various medical and charitable bodies in regard to the proposed bill of the State Board of Charities for

the regulation of dispensaries. The main points of the argument against the bill were presented by Mr. I. G. Cannon, President of the Good Samaritan Hospital, which has a large out-patient department. In the course of his remarks he said: "The bill is a grant of power to the State Board of Charities to shut up any number of dispensaries if they see fit to withhold from them a license. They are vested with an arbitrary and absolute discretion. The underlying motive that inspires this legislation is the desire of the medical profession to increase their incomes. It is a bill to reduce medical and surgical aid to the sick poor, the capacity of the people at large to receive medical treatment gratuitously or at moderate charges." On the other hand, those favoring the bill quoted the reports of the State Board of Charities stating that nearly fifty per cent. of the inhabitants of New York City are now receiving practically free medical treatment, and that in some instances the managers of dispensaries have boasted of the wealth of their patients. The following extract from a report by the Department of Hygiene of the Society for the Improvement of the Condition of the Poor was also adduced: "It becomes a practical question for this association to consider again what, if anything, can be done to remedy this evil to the interests of the poor themselves, who are either pauperized by the receipt of medical assistance for which they should pay if able, or are crowded away from the clinics and schools by those who are quite able to pay." The State Board of Charities has given notice that a committee will hold public meetings in New York at which all interested will be welcome to state their views.

MT. SINAI HOSPITAL.—The managers of the Mt. Sinai Hospital, finding their present quarters at Lexington Avenue and 66th Street too limited, have purchased a site for a new hospital on Fifth Avenue, facing Central Park, extending from 100th to 101st Streets and including twenty-five city lots in all.

DR. J. G. TRUAX.—Dr. John G. Truax, one of the most prominent and successful practitioners in the Harlem district of the city, died at his home in 127th Street on February 16th, of chronic Bright's disease. He was born in Durhamville, Oneida County, N. Y., March 5, 1848, and received his academic education at the University of Michigan. He was graduated from the Rush Medical College, Chicago, in 1871, and began his professional career in New York in 1876. He was for a long time one of the attending physicians of Harlem Hospital and an examiner of the Bureau of Pensions. He was one of the founders of the New York State and County Medical Associations.

DR. JAMES WILKINSON.—Dr. James Wilkinson died at his home in Jersey City on February 18th. He was born in England in 1837, but came to this country in early youth. He was graduated from the College of Physicians and Surgeons, New York, in 1858, and soon afterward settled in South Bergen,

then a suburb of Jersey City, where he built up one of the largest practices in the State. Three years ago he retired and was succeeded by his son, Dr. George Wilkinson, who, with one brother and several sisters, survive their father.

Episcellany.

DEATHS FROM SUFFOCATION IN ENGLAND.

In the last issue of the JOURNAL an extract in regard "to overlaying," from an English paper, was given, rather as a curious and extraordinary statement than as reliable statistics. Reference to the Registrar General's annual returns, which are doubtless measurably correct, proves this statement to be even more curious and extraordinary than we at first suspected.

	1893	1894	1895
Total deaths from suffocation,	2140	2081	2319
Of these there were suffocated in bed (representing deaths from overlaying),	1656	1650	1865
Of these there were under five years old	1622	1613	1826
Under one month	437	446	492

SPURIOUS OR ADULTERATED LIQUORS.

In the cause of true temperance the Citizens' Law and Order League of Massachusetts has now brought a House Bill, No. 526, before the present legislation to prevent the sale of spurious or adulterated liquors. It is so drawn as to cause a vigorous inspection of the liquors offered for sale, and its promoters expect to be able thereby to exclude a large part of the commercial stock of liquors from sale by proving them to be either spurious or adulterated. That many commercial liquors are so seems to be well substantiated by the admission of members of the liquor trade themselves, as published in the United States Government report of the tariff hearing before the Committee of Ways and Means, December, 1896, and January, 1897.

This is not surprising considering a letter of Joseph S. Miller, United States Commissioner of Internal Revenue, dated Washington, October 12, 1895, in which he said: "The manufacture of spurious, imitation or compound liquors for sale under the name of whiskey, brandy, gin, rum, wine, spirits, cordials or wine-bitters, or any other name, is recognized, under internal revenue laws, as a legitimate business . . . the officer might be warranted in recognizing, as legitimate, bourbon whiskey, rye whiskey, or any of the other kinds of spirits named in the annual report of this office, which might be produced by a rectifier, say by mixing pure, neutral or cologne spirits with caramel, flavoring extracts, coloring-matter and other ingredients. It should be borne in mind that the internal revenue laws are framed for the collection of revenue."

This letter shows how much confidence can be placed in the absolute purity of such liquors as claim it because they bear the guarantee of the United States government revenue stamp as put up in bond, and also that some such inspection as is proposed in the new bill is much needed. The inspector appointed under the present statute seems to have made no report to the State since he was appointed in 1885.

HEALTH RESORTS AND WATER FOR THE ANEMIC.

DR. HERMANN WEBER sums up an interesting paper¹ as follows:

(1) The majority of cases can be treated without either spas or special climates, although the latter can be rendered useful in most instances.

(2) Anemic patients are often in so great a state of weakness that no journey, either to spas or climatic resorts, ought to be attempted, but a preparatory treatment ought to precede the change.

(3) In many cases the attention to climate is more important than to mineral waters, because the medical agents contained in the latter can be supplied pharmaceutically. In all cases in the selection of spas special attention should be paid to the question of climate.

(4) Many anemic patients do equally well at the seaside and on mountains; but, as a rule, more torpid cases are better influenced by the seaside; more excitable, better by sheltered mountain resorts, in medium, not in the highest elevations. Cases with considerable dilatation of the heart ought not to be sent either to level seashores or to highly elevated places, but to mountain resorts below three thousand feet above sea-level.

(5) The influence of change is so great that anemics residing or having fallen ill at the seaside ought to be removed to the mountains, and *vice versa*.

(6) In the selection of mineral water the causes of the anemia and the complications must always be carefully considered. Chalybeate springs are certainly not always the proper means of treatment.

(7) Proper arrangement of diet and exact rules as to exercise are of the greatest importance, as well in the climatic as in the spa treatment of the anemic.

(8) The mental condition requires the most careful attention. A moderate degree of agreeable occupation and of enjoyment is usually essential; hence it is necessary to consider not merely the questions of good accommodation and food, but also the society likely to be met with at the place selected, the beauty of the surroundings, the music and everything which can occupy the mind in an agreeable way.

Obituary.

EDWARD CONSTANT SEGUIN, M.D.

DR. EDWARD CONSTANT SEGUIN, the eminent neurologist, died at his residence in New York on February 19th, from carcinoma of the liver. He was born in Paris, France, in 1843, and was the only child of the late Dr. Edouard O. Seguin. The latter came to the United States with his family in 1850 and settled in Cleveland, O. He subsequently removed to New York, where he established a successful practice, and was especially well known as the founder of an admirable institution for the instruction of feeble-minded children, which, after his death, was carried on by his widow.

Dr. E. C. Seguin commenced his medical studies in 1861 at the College of Physicians and Surgeons, New York, from which he was graduated in 1864. In 1862 he was appointed a medical cadet in the United States Regular Army, and acted in that capacity for two terms of active service during the Civil War before his graduation. As a

surgeon in the army he served from September, 1864, to June, 1865, at Little Rock, Ark. On his return to New York at the close of the war he was appointed house physician of the New York Hospital. Being obliged to relinquish this position on account of developing pulmonary trouble, he was, by courtesy of the Surgeon-General, assigned to military duty in New Mexico, where he served for a time as post-surgeon at Fort Craig and afterwards at Fort Selden. The winter of 1869-70 was spent by Dr. Seguin in Paris, where he studied under Brown-Séquard, Charcot, Ranvier and Cornil, with all of whom he became intimate.

When he returned to New York he was at once recognized as an authority on nervous and mental diseases, and in 1871 was appointed to a professorship in the College of Physicians and Surgeons, which he retained until 1885. In 1873 he founded the Clinic for Diseases of the Nervous System. During his professorship and subsequently, he contributed much to the literature of his specialty, and was regarded throughout the country as one of the foremost experts in neurological science and insanity.

A number of years ago he married a sister of Dr. Royal Amidon, who was for a considerable time associated with him in practice. While suffering from a sudden fit of insanity Mrs. Seguin killed her three children and herself, an event which sent a thrill of horror through the community and excited the profound sympathy of his professional brethren for the stricken husband.

ROBERT A. WHEATON, M.D.

DR. ROBERT A. WHEATON, of St. Paul, Minn., died in that city on February 13th of meningitis following otitis media, at the age of thirty-five. He was born at Northfield, Minn. He received his degree at the Harvard Medical School about ten years ago and served as House Physician at the Boston City Hospital. About six years ago he began practice in St. Paul in partnership with his brother, Dr. Charles A. Wheaton.

Dr. Wheaton was married in December, 1895, to Miss Jane Moore, who with a daughter about five months old survives him.

His death closes a career that gave every promise of becoming brilliant and successful. Though still a young man he ranked among the foremost surgeons in Minnesota. As a practitioner he had not only the confidence but the friendship of his patients, and his sudden death was felt generally as a deep personal loss.

He was the professor of minor surgery in the medical department of the University of Minnesota and was assistant surgeon on the city and county hospital staff. He was also a frequent contributor to the medical press.

METEOROLOGICAL RECORD

For the week ending February 12th, in Boston, according to observations furnished by Sergeant J. W. Smith, of the United States Signal Corps:—

Date.	Baro- meter	Thermom- eter.			Relative humidity.		Direction of wind.		Velocity of wind.		Weath'r. e		Rainfall in inches	
	Daily mean.	Daily mean.	Maximum.	Minimum.	8.00 A. M.	8.00 P. M.	Daily mean.	8.00 A. M.	8.00 P. M.	8.00 A. M.	8.00 P. M.			
S...6	30.26	36	41	31	77	66	82	N.W.	N.	10	4	C.	C.	.18
M...7	30.26	33	43	22	74	66	70	N.W.	N.W.	4	7	C.	O.	
T...8	30.38	36	44	29	84	68	76	S.E.	N.W.	3	8	O.	F.	.14
W...9	30.36	37	42	32	86	66	86	S.W.	S.E.	3	3	O.	O.	
T...10	30.24	48	59	36	77	68	72	S.W.	N.	8	16	O.	O.	.14
F...11	30.44	40	44	36	85	79	82	E.	S.	10	16	O.	O.	
S...12	30.04	44	50	37	92	80	86	S.	W.	13	12	O.	C.	

* O., cloudy; C., clear; F., fair; G., fog; H., hazy; S., smoky; R., rain; T., threat; sn., snow. † Indicates trace of rainfall. ☞ Mean for week.

¹ The Practitioner, 1897, No. 351, p. 235.

RECORD OF MORTALITY

FOR THE WEEK ENDING SATURDAY, FEBRUARY 12, 1898.

Cities.	Estimated population.	Reported deaths in each.	Deaths under five years.	Percentage of deaths from					
				Infectious diseases.	Acute lung diseases.	Diarrheal diseases.	Typhoid fever.	Diphtheria and croup.	
New York . . .	3,438,899	—	—	—	—	—	—	—	—
Chicago . . .	1,619,226	—	—	—	—	—	—	—	—
Philadelphia . .	1,214,256	506	146	14.06	15.39	1.33	3.99	5.13	—
Brooklyn . . .	1,160,000	—	—	—	—	—	—	—	—
St. Louis . . .	570,000	172	45	5.22	23.78	—	.58	4.64	—
Baltimore . . .	560,000	205	69	9.31	12.25	.49	1.47	3.92	—
Boston . . .	517,782	233	57	4.73	19.78	.86	1.72	1.72	—
Cincinnati . . .	405,000	112	—	7.12	15.13	—	3.56	1.78	—
Cleveland . . .	360,000	97	32	5.15	15.45	1.03	2.06	2.06	—
Pittsburg . . .	285,000	127	41	12.48	19.50	4.68	4.68	2.34	—
Washington . . .	277,000	106	30	9.40	23.50	2.72	—	.94	—
Milwaukee . . .	276,000	—	—	—	—	—	—	—	—
Worcester . . .	106,050	30	11	10.00	13.33	3.33	3.33	—	—
Nashville . . .	87,754	26	5	8.00	12.00	4.00	—	—	—
Fall River . . .	86,919	—	—	—	—	—	—	—	—
Lowell . . .	87,193	30	10	—	11.99	—	—	—	—
Cambridge . . .	86,812	21	6	4.76	4.76	—	—	—	—
Lynn . . .	86,220	28	13	15.36	23.04	—	3.84	—	—
Charleston . . .	65,165	—	—	—	—	—	—	—	—
New Bedford . .	62,416	22	10	12.45	8.80	4.15	—	4.15	—
Lawrence . . .	55,510	16	8	12.50	6.25	—	—	12.50	—
Springfield . .	54,790	16	6	50.00	50.00	—	—	12.50	—
Holyoke . . .	42,364	11	5	9.09	18.18	—	—	—	—
Portland . . .	40,000	—	—	—	—	—	—	—	—
Salem . . .	36,062	4	2	50.00	25.00	—	—	50.00	—
Brookton . . .	36,853	11	1	—	9.09	—	—	—	—
Malden . . .	32,894	7	1	14.28	14.28	—	—	—	—
Chelsea . . .	32,716	14	3	—	14.28	—	—	—	—
Haverhill . . .	31,408	11	7	9.09	45.45	—	—	—	—
Gloucester . . .	29,775	—	—	—	—	—	—	—	—
Newton . . .	28,990	5	0	20.00	40.00	—	—	—	—
Fitchburg . . .	28,892	4	1	—	—	—	—	—	—
Taunton . . .	27,812	6	1	16.66	16.66	16.66	—	—	—
Quincy . . .	22,562	6	0	—	—	—	—	—	—
Pittsfield . . .	21,891	—	—	—	—	—	—	—	—
Waltham . . .	21,812	4	1	—	25.00	—	—	—	—
Everett . . .	21,575	5	2	—	80.00	—	—	—	—
Northampton . .	17,448	—	—	—	—	—	—	—	—
Newburyport . .	14,794	5	1	—	40.00	—	—	—	—
Amesbury . . .	10,920	—	—	—	—	—	—	—	—

Deaths reported 1,904; under five years of age 526; principal infectious diseases (small-pox, measles, diphtheria and croup, cerebro-spinal meningitis, diarrheal diseases, whooping-cough, erysipelas and fever) 183, acute lung diseases 340, consumption 221, diphtheria and croup 64, typhoid fever 48, diarrheal diseases 25, measles 17, whooping-cough 11, cerebro-spinal meningitis 9, erysipelas 6, scarlet fever 5.

From measles Philadelphia 9, Baltimore 4, Pittsburg 2, Washington and Haverhill 1 each. From whooping-cough Philadelphia, Baltimore, Cincinnati and Lynn 2 each, Washington, New Bedford and Springfield 1 each. From cerebro-spinal meningitis Washington 3, Philadelphia, Worcester, Lynn, Holyoke, Brockton, Malden and Newton 1 each. From erysipelas Philadelphia 5, Nashville 1. From scarlet fever Philadelphia 2, Baltimore, Washington and Cambridge 1 each.

In the thirty-three greater towns of England and Wales, with an estimated population of 11,218,378, for the week ending February 5th, the death-rate was 19.2. Deaths reported 4,133; acute diseases of the respiratory organs (London) 471, measles 141, whooping-cough 130, diphtheria 79, scarlet fever 41, diarrhoea 37, fever 25.

The death-rates ranged from 11.1 in Bolton to 23.7 in Plymouth; Birkenhead 18.0, Birmingham 21.4, Brighton 17.1, Cardiff 18.2, Gateshead 15.6, Hull 17.5, Leeds 18.4, Leicester 16.2, Liverpool 20.2, London 21.5, Manchester 17.3, Newcastle-on-Tyne 15.9, Nottingham 17.4, Sheffield 17.4, Sunderland 15.2.

OFFICIAL LIST OF CHANGES IN THE STATIONS AND DUTIES OF OFFICERS SERVING IN THE MEDICAL DEPARTMENT, U. S. ARMY, FROM FEBRUARY 12, 1898, TO FEBRUARY 18, 1898.

CAPTAIN PAUL F. STRAUB, assistant surgeon, is relieved from duty at Angel Island, Cal., and ordered to report in person to the commanding general, Department of the Columbia, without delay, for assignment to duty.

FIRST-LIEUT. CARL R. DARNALL, assistant surgeon, is relieved from duty at Fort Clark, Tex., and ordered to Fort McIntosh, Tex., for duty at that post, relieving CAPTAIN FREDERICK P. REYNOLDS, assistant surgeon.

CAPTAIN REYNOLDS, on being thus relieved, is ordered to Vancouver Barracks, Wash., for duty at that post.

OFFICIAL LIST OF CHANGES IN THE MEDICAL CORPS OF THE U. S. NAVY FOR THE TWO WEEKS ENDING FEBRUARY 19, 1898.

G. C. HUBBARD, assistant surgeon, sent to St. Elizabeth's Government Hospital for the Insane.

J. C. THOMPSON, assistant surgeon, detached from the Naval Hospital, Mare Island, Cal., and ordered at once to the "Mohican."

SOCIETY NOTICE.

THE SUFFOLK DISTRICT MEDICAL SOCIETY, SURGICAL SECTION.—The Surgical Section will meet at the Medical Library, 19 Boylston Place, on Wednesday evening, March 2d, at 8.30 o'clock.

Papers: "Some Observations upon Improved Aseptic Technique," by Dr. G. E. Brewer, of New York City.

"Report of a Case of Intermittent Hydronephrosis, with Cure by Operation," by Dr. J. W. Elliot.

The presentation of specimens, apparatus, etc., of surgical interest is invited.

PAUL THORNDIKE, M.D., Secretary, 244 Marlborough St.

BOOKS AND PAMPHLETS RECEIVED.

Suicide. By C. H. Hughes, M.D., St. Louis, Mo. Reprint. 1897.

Leprosy. By Isadore Dyer, M.D., New Orleans, La. Reprint. 1897.

Antogenous Poisoning in Disease. By E. D. Bondurant, M.D., Mobile, Ala. Reprint. 1897.

The Etiology and Classification of Tumors. By Samuel H. Friend, M.D., Milwaukee, Wis. Reprint. 1897.

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Original Articles.

FOR WHAT PERIOD OF TIME CAN IMMUNITY FROM DIPHTHERIA BE CONFERRED BY A SINGLE INJECTION OF ANTITOXIN? THE DOSAGE.

BY F. GORDON MORRILL, M.D.,
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WHILE one reads an occasional mention of immunization against diphtheria in the journals, the literature of the subject is vague and unsatisfactory as regards the vital questions, For how long a time can safety be insured, and what is the proper dose of antitoxin? The most satisfactory report which I have seen is that of Dr. Hermann M. Biggs, of New York, "The Use of Antitoxic Serum for the Prevention of Diphtheria," to which I shall have occasion to refer later on. The longest paper, or rather series of papers of which I have any knowledge is that of Kassowitz,¹ who positively denies that the serum confers the slightest degree of immunity. To arrive at anything like a definite and respectable conclusion as to what can or cannot be achieved in the prevention of diphtheria the careful personal observation of a large number of recorded cases during a period of years is required,—and it has been our good (or bad) fortune to have used antitoxin for immunization at the Children's Hospital since January 13, 1895; and while my object in preparing this paper has been to present what I believe to be the truth about immunization, rather than to answer Dr. Kassowitz, I venture to hope that I can at least cast a substantial doubt upon the soundness of his conclusions and the means (in part) by which he has reached them.

An outline sketch of what has been done to prevent the occurrence of diphtheria in our wards, and of the circumstances which led to our adoption of a system which we still employ is as follows:

For years we had been seriously handicapped by occasional outbreaks of diphtheria in the hospital, and during the year 1894 we were obliged to discharge every child in the house and close our doors on three separate occasions. After each of these epidemics we went through a thorough process of cleaning and disinfection, and enforced such rules as to the admission of visitors as seemed likely to prevent a recurrence of the trouble. But notwithstanding these precautions, on January 13, 1895, we were confronted by the serious fact that we had three cases of clinical and six of what we soon learned to regard as bacteriological diphtheria in our infectious ward; and the question of closing the hospital for the fourth time within twelve months, or trying what immunization might do to aid us in keeping our doors open and going on with our work, arose, and the latter course decided upon. Accordingly all the children and nurses were injected, and with complete success so far as promptly stopping the further development of any symptoms which were thought to characterize diphtheria previous to the birth of the Klebs-Löffler bacillus.

At that time there prevailed decidedly vague notions as to what could be accomplished in the way of immunization, and the amount of serum injected for the purpose was too small—150 units being the usual dose employed.

Equally indefinite ideas as to the significance of

the presence of the bacillus *per se* were in vogue, and we fell readily into line with the opinion that this alone constituted diphtheria; and thus fresh terrors were attached to a name which we had already sufficient cause for disliking. So that while we congratulated ourselves upon having escaped a very immediate danger, the question of how often to inject remained to be settled; and while sending all children who had the bacillus but no clinical symptoms of diphtheria to the infectious ward seemed rather a harsh measure, we feared the disapproval of the bacteriologists if we failed to perform what they proclaimed to be an obvious duty, all of which resulted in an overcrowding of the infectious ward, and a great waste of serum, which we used in frequently repeated injections in such cases as had the bacillus, but no clinical symptoms, hoping thereby to rid our patients of microbes which were really doing them no harm.

Each child was injected upon entering the house, and cultures were made to the extent that we were able to impose upon the good nature of the gentlemen at the Bacteriological Laboratory of the Harvard Medical School (who certainly did all in their power to aid us), and deluded with the belief that each new discovery of the bacillus meant a fresh infection, the interval permitted to elapse between the routine immunizations of well children was fixed at thirteen days; so that while the doses given were too small, their frequency made up for this deficiency in a great majority of cases so far as the prevention of clinical diphtheria was concerned. On May 5th the infectious ward was empty, all throats and noses were free of the bacillus, and our experience could be briefly summed up as follows: None of the children who had been sent to the infectious ward with merely bacillary throats or noses had manifested any symptoms of clinical diphtheria, although thoroughly exposed to infection both from their own mucous membranes and from patients having well-marked deposits of diphtheritic membrane.

Two emergency cases had broken down within twenty-four hours of admission and immunization. One boy who had received 150 units January 29th had unmistakable symptoms February 15th; and a girl who had been injected with a like amount broke down March 25th. No antitoxin was used (excepting for curative purposes in cases which I shall shortly mention) after May 15th until the succeeding autumn.

June 30th two girls returned from the Convalescent Home at Wellesley with diphtheria.

July 14th Theresa R., and August 5th William M., were sent over to the infectious ward from the house.

On November 15, 1895, immunization was again begun and our statistics up to that date are: Of 279 immunized children, four had diphtheria—two of these within twenty-four hours after injection and two from the fact (as I shall hope to prove) that the amount of antitoxin used was altogether too small. As to the first two cases, it is merely stating a truism to say that one can immunize too late, just as one may vaccinate too late, and that such cases are merely the natural results of (often unavoidable) delay.

Of 414 non-immunized patients who were in the house between May 15th and November 15th, four had diphtheria; and this at a time when the disease was far less prevalent, and when open windows &

¹ Vienna Medical Weekly, May 16, 1896.

forded free ventilation for those in the hospital, while the two who broke down at Wellesley had enjoyed plenty of outdoor air.

In view of our previous experience, it was now decided to inject each child in the bath-room on admittance before permitting it to enter any of the wards—the amount to be injected being fixed at one-half the curative dose for children of eight or over, one-third for those between five and eight, and one-fourth for patients between two and five.² No delay was permitted (for bacteriological examination) in the admission of patients, but all new cases were sent into rooms in the last wing, there to remain until their cultures showed their fitness to occupy beds in the common wards. To this section of the house were also sent all cases acquiring the bacillus while in the hospital. The injections were repeated every 28 days, and in case of fresh discoveries of the microbe the children having it were at once injected providing 10 days had elapsed since their last immunization.

December 15, 1895, Dr. H. W. Gross entered upon his duties as bacteriologist to the hospital, and weekly cultures were made from every throat and nose in the house.

During the winter and succeeding spring (1896), although very nearly eight per cent. of the children had the bacillus, and we were free from its presence for five days only, as shown by the cultures, the only cases of diphtheria were: a case in which the antitoxin was accidentally omitted for 36 days, and two who were sent to the City Hospital from Wellesley after omission of immunization for three months and 43 days respectively. By the middle of May all the cultures were negative and injections stopped.

During the summer no cases of diphtheria occurred and we did not resume the antitoxin until November, 1896, when we determined to pay no further attention to the bacillus, but to simply inject every 28 days with the same dose employed during the preceding winter. The result of the previous year being: Of 421 children injected every four weeks, none had diphtheria, while of 425 either non-immunized patients or in whom the serum had been omitted for at least 36 days, three had contracted the disease.

Accordingly, no further cultures were made, and applicants were freely admitted to the common wards. All went well until February 18, 1897, when a boy of ten was sent to the City Hospital from Wellesley 23 days after receiving 250 units. It was not thought best however to shorten the intervals on account of the exception, particularly in view of the fact that an insufficient amount had been used,³ and matters proceeded as before until March 5th, when a girl, age six, who had been given 300 units 23 days previously showed unmistakable symptoms; and again on April 26th, when a child of twelve who had been injected with 400 units 22 days before broke down. May 7th an interne and two nurses and one child (all non-immunized) came down.

Since April 26, 1896, from 250 to 500 units (in accordance with age⁴) have been given each case every three weeks, and we have had no further

trouble. Whether any of the patients have bacillary mucous membranes we do not know; but judging by our previous experience, some of them probably have—just as a certain percentage of children one sees playing about the streets have.

Since November, 1896, of 423 cases immunized every 28 days, three contracted diphtheria, the minimum time elapsing between the infection and clinical symptoms being 22 days; while of non-immunized children and adults four contracted the disease. Of 680 who have been immunized every three weeks none have had it.⁵

Glancing back over what I have said, it will be seen that of 1,808 patients immunized at least once every 28 days with amounts of serum varying from 150 to 500 units, seven had diphtheria; three from insufficient dosing, two within twenty-four hours of being injected, and two in whom the time of infection came 23 and 22 days respectively after being given an amount which has thus far proved entirely effective when given every three weeks. Of 829 who were given no antitoxin, or in whom more than 28 days elapsed after the injections, nine had diphtheria, besides three non-immunized adults.

In New York the results as set forth by Dr. Herman M. Biggs⁶ are strongly corroborative of the views which our experience has led us to adopt: In the New York Infant Asylum, between September, 1894, and January 16, 1895, there were 107 cases of diphtheria. Two hundred and thirty-four children were immunized on January 17th, and but one case occurred until 30 days had elapsed, when five more developed during the succeeding 12 days at which time an increased dose (125 to 225 units) was given 245 children, and no further trouble was experienced for 31 days. At the Juvenile Asylum 12 cases occurred during the two months preceding April 13, 1895, when 81 children were immunized during that, and the succeeding few weeks,⁷ and the only cases of diphtheria which developed were those of two non-immunized children and one adult. Similar experiences were had at the Nursery and Child's Hospital, the Bellevue and the Catholic Protectory. At the last-named institution the amounts injected at the second immunization corresponded very closely to those which we now employ, and no cases occurred within 30 days, excepting one which appeared within twenty-four hours of the injection. The inspectors of the Health Department immunized 232 persons, and in three of the four cases which broke down within the succeeding 30 days, the symptoms appeared within twenty-four hours—examples of the unavoidable.

Of 1,048 cases tabulated in Dr. Biggs's report (a large percentage having had positive cultures and all having been more or less exposed to infection) three only, aside from those in which symptoms were obscured within twenty-four hours, broke down—on the 12th, 17th and 19th days respectively; and in these three cases the dose administered varied "from 100 to 250 units"—examples of insufficient dosage—while at the Catholic Protectory (where only one break-down and that within twenty-four hours occurred) much larger quantities were used. Surely these results are enough to prove that there "is something in" immunization—something which not only

² From November 15, 1895, to March 16, 1896, the serum made by Dr. Ernst was used; and the test of potency being based on the French system, affords no satisfactory means of comparison with the present standard in units. Since the last-mentioned date we have been supplied by the State Board of Health, and the dosage fixed by the prevailing standard.

³ Probably on account of a temporary deficiency of serum.

⁴ The patients at the Boston Children's Hospital are from two to twelve years of age, inclusive.

⁵ Immunization has been carried out during the past summer.

⁶ Loc. cit.

⁷ Interval between injections not stated.

saves life, but does so with a degree of certainty which vaccination alone can rival.

Dr. Kassowitz bases his theory of the utter futility of immunization partly upon the fact that the disease itself confers no immunity from early or late reinfection even in cases treated with the serum, and partly on cases which he quotes when antitoxin has failed to ensure safety. As to reinfection after diphtheria, I am perfectly willing to concede that there is scarcely a disease which a human being cannot have a second time if he survives the first attack; and as to his instances of quite speedy relapse after the serum treatment it might be asked if they may not have been due to failure to use a sufficient quantity during the original seizure.

The cases which he cites as proving that antitoxin administered to healthy children confers no immunity are for the greater part quoted without reference to the journals in which they were originally published, and without stating the number of days elapsing before infection took place—thus rendering fair criticism impossible. Of the few he mentions with definite references, some have proved inaccessible to me, but in any event his cases include: twelve brothers and sisters who accompanied diphtheritic children to the hospital, and who were each injected with 120 units. Three of those who were given this insufficient dose had diphtheria at some indefinite time later on. Two cases in which infection took place in twenty-four hours, and which merely substantiate the fact that one can immunize too late. One case in which an inadequate dose (150 units) was followed by infection on the 18th day. One case in which there was infection on the 28th day.

I do not wish to be understood as implying that the cases which I have not read in their original sources of publication may not carry a degree of belief in Dr. Kassowitz' theory. To do this would be to question the good faith which doubtless inspired him to publish his articles. I can only say that from the material at my command, and an experience of nearly three years in this special line, I can arrive at nothing but a total disagreement with his expressed opinion.

So far as bad results from the injections are concerned, the only cases which I have seen where anything like dangerous symptoms appeared were those of a boy with a splenic leucocythemia, and another with a nephritis. In the latter instance the antitoxin caused a distinct increase of the albuminuria and dropsy. In another case in which the same clinical symptoms were present and the urinary analysis corresponded very closely to that of the first, the injections produced no unpleasant effects. We have given in all about 3,000 injections; and with the above exceptions, aside from an occasional urticaria (far more rare now than formerly) and an insignificant and transitory albuminuria, nothing worth noting has followed them. Very rarely has the antitoxin been omitted or postponed, no matter how sick the patient may have been. In one instance of very severe cerebro-spinal meningitis in which no injections were given, the child contracted a diphtheria which proved fatal.

I am quite sure that the fact of our ability to confer safety for a definite time by promptly injecting exposed cases with an adequate dose of antitoxic serum is not sufficiently recognized; and I think that the prevailing opinion among the medical profession re-

garding immunization may be briefly stated as follows: It is an uncertain thing at best, and perhaps it is, upon the whole, just as well to watch exposed cases, and inject promptly the first moment that symptoms of diphtheria appear. Should advice of this kind be given as regards vaccinating persons exposed to small-pox it would be just as logical—yet these principles are printed, preached and practised to day, and the point that it is an obvious duty to immunize every person who has been exposed to diphtheria is either denied, or dodged by half-hearted approval, and the recommendation of insufficient doses.

From actual experience we are perfectly justified in believing:

(1) That immunity in any given case, of no matter how thorough exposure to diphtheria, may be conferred, for at least ten days, by the injection of a small dose (100–250 units) of serum, provided it is given twenty-four hours previous to actual infection.

(2) That a larger dose (250 units for a child of two, up to 500 units for one of eight or over^a) will confer safety for three weeks—or to be a little more conservative, let us say twenty days—under similar conditions.

(3) That no harm will result from the treatment in a vast majority of cases of *sick* children, and probably in no case of a healthy child, provided the serum used is up to the present standard of purity.

In conclusion, I would say that any one who thinks that antitoxin will prevent the occurrence of a follicular tonsillitis or of a coryza in an individual who happens to have the Klebs-Löffler bacillus in his throat or nose will be disappointed; for neither of these conditions constitutes a diphtheria any more than the coexistence of the pneumococcus in the saliva and a bronchitis constitutes a frank pneumonia. I will add that a physician who fails to promptly immunize the members of a family or close community in which diphtheria breaks out, neglects to do his duty by those whose safety lies in his hands.

PYONEPHROSIS.

A CLINICAL STUDY, WITH DETAILED REPORT OF A CASE OF EXTREME TYPE.

BY ALBERT H. TUTTLE, M.D., CAMBRIDGE;
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(Concluded from No. 8, p. 177.)

REMARKS OF DR. REYNOLDS.

THIS case furnishes a fine example, both of the value and the limitations of the ureteral catheter in the treatment of pyonephrosis.

In my opinion this patient would certainly have died if subjected to the knife when I first saw her, and I think that the very remarkable improvement which followed the drainage of the abscess through the catheter must be considered to have saved her life by permitting her to improve to a point at which

^a It can readily be conceived that in the employment of large quantities of serum, the doses given (for economical reasons, or as a matter of convenience) not always correspond to those which our experience at the Children's Hospital has shown to be the most advisable. For instance, if a phial contains 1,800 units and four children between the ages of eight and twelve require immunisation, 400 units would probably be given in each case, and so on.

operation became possible. At the same time, I do not believe that in cases of any severity the use of the catheter can promise a permanent cure, or take the place of the knife. I should limit its use to the old surgical principle of the treatment of pus with which our fathers were so familiar, that in desperate cases one should employ minor means so long as the patient improves under them, and the moment this improvement ceases, cut down upon the pus without waiting for the subsequent deterioration which is sure to follow. There can be no doubt to my mind but that Dr. Tuttle was emphatically right in abandoning the catheter and turning to the knife at the time he did, and that he was right in limiting his operative interference at that time to a nephrotomy. The removal of so old and active a pyonephrosis could hardly have been complete without the excision of at least a portion of the ureter; and that the patient would hardly have survived so extensive an operation is shown by the fact that she nearly succumbed to a rapid nephrotomy. In the introduction of the ureteral catheter in cases in which catheterization is made difficult by strictures or other distortions of the ureter, success is largely influenced by the instruments used. In the presence of stricture I am inclined to believe it unwise to use any instrument more rigid than the webbing catheters, and I believe it very important to success that the individual catheter selected should have a long, gently tapering and flexible point. This can then be trusted to guide itself through the stricture. A small catheter (one and three-fourths or two millimetres in diameter) will often pass with ease, if used first, when a primary attempt to pass a larger one through the stricture would have rendered the ureter impassable to the subsequent use of the small catheter, unless a number of days or weeks are allowed to elapse between the attempts. Whether this is due to the production of swelling or of spasmodic contraction by the ineffectual attempts to pass the large catheter, I do not know, but I am confident that the difficulty is a fact.

Since the date of this case, I have learned by experience that the best way to pass the stricture is by means of rapid gradual dilatation with bougies. It has become my habit to raise the stricture to about a No. 13 French at a single sitting (this size having been selected empirically), after which the use of an ample catheter is easy.

For cases in which it is necessary to tie the catheter in place, it is to be regretted that we have not a better material than the so-called webbing catheters, which seem always to irritate the bladder after variable periods. In this case the term during which the patient was able to retain it was unusually long.

NOTES AND REMARKS OF DR. OGDEN.

On August 13, 1896, I received four specimens of urine for analysis, in the case of Mrs. H.

First Specimen.—From left kidney, taken from renal pelvis by ureteral catheter. Amount of urine, 44 c. c.; time equal. Color pale; reaction acid; specific gravity 1.012; urophein relatively diminished; indoxyl much increased; urea 1.26%; uric acid relatively increased; chlorides, earthy and alkaline phosphates relatively diminished. Albumin: a trace (not quantitated, but approximately $\frac{1}{8}$ of 1%). Bile and sugar absent. Sediment: numerous medium and small caudate epithelial cells, like those from

ureter and superficial layer of pelvis of kidney. Few leucocytes and small round epithelial cells, an occasional one slightly fatty (probably most of them renal). A few small hyaline and granular casts, an occasional one with an abnormal blood-globule, renal cell and fat globule adherent. Few normal and abnormal blood-globules.

Second Specimen.—From right kidney. Spontaneous evacuation through ureteral catheter after the use of an aspirator.

Amount of urine, 49 c. c. Color normal; turbid; reaction strongly alkaline; specific gravity 1.015; urophein diminished; indoxyl increased; urea .63%; chlorides, earthy and alkaline phosphates diminished. Albumin $\frac{1}{4}$ % to $\frac{1}{2}$ % (not quantitated). Bile and sugar absent. Sediment: a large amount of pus, some of which is much degenerated. Many small and medium round cells, few of which are fatty. A large amount of granular *débris* (probably from broken-down pus and cells). Numerous abnormal and few normal blood-globules.

On August 17th two more specimens were received, the results of analyses being as follows:

Left Kidney.—Urine passed through bladder. Amount in twenty-four hours for this kidney, 636 c. c. Color pale; reaction acid; specific gravity 1.010; urea 1.23%. Albumin, a slight trace (not quantitated, but less than on the 13th). Bile and sugar absent. Sediment: considerable squamous epithelium. Numerous small round cells, few normal and abnormal blood-globules. A few hyaline and granular casts with renal cells, abnormal blood and an occasional one with a little fat adherent. A few cells as from the calicis of kidney, and an occasional small caudate cell as from the superficial layer of pelvis of kidney. Total urea in twenty-four hours for this kidney, 7.17 gm.

Right Kidney.—Urine passed through ureteral catheter. Amount in twenty-four hours for this kidney, 295 c. c. Color pale; turbid; reaction faintly acid; specific gravity 1.009; urea .38%. Albumin, $\frac{1}{4}$ % to $\frac{1}{2}$ % (not quantitated). Sediment: a large amount of degenerated pus and many medium and small round cells. Considerable normal blood. No casts seen. Urea from this kidney, 1.12 gm. in twenty-four hours. Total urea in twenty-four hours from both kidneys, 8.29 gm. The sediment of the urine from the right kidney was thoroughly examined for tubercle bacilli, with a negative result.

Left Kidney (August 21st).—Urine passed through bladder. Amount in twenty-four hours, 830 c. c. Color pale; acid reaction; specific gravity 1.012 $\frac{1}{2}$; urea 1.26%. Albumin $\frac{1}{8}$ of 1%. Sediment: considerable pus free and in clumps; many medium and small round cells, a few of which are fatty; considerable squamous epithelium and few blood-globules; an occasional hyaline and granular cast, with fat and renal cells adherent. Total urea in twenty-four hours from this kidney, 10.45 gm.

Right Kidney (August 21st).—Amount passed through ureteral catheter, 205 c. c. Color pale; turbid; faintly alkaline reaction; specific gravity 1.013; urea .57%; albumin $\frac{1}{8}$ %. Sediment: same as on August 17th, except that there is more pus and blood. No casts found. Urea from this kidney, 1.16 gm. in twenty-four hours.

Total quantity of urea in twenty-four hours from both kidneys, 11.51 gm.

Left Kidney (August 25th).—Amount of urine se-

creted in twenty-four hours, 950 c. c. Color pale; reaction faintly acid; specific gravity 1.011; urea 1.01 %. Albumin, a very slight trace (too slight to quantitate). Sediment: same as on August 21st. Total amount of urea in twenty-four hours, 9.6 gm.

Right Kidney (August 25th).—Amount of urine which passed through ureteral catheter in twenty-four hours, 250 c. c. Color muddy; reaction faintly acid; specific gravity 1.012; urea .56 %; albumin $\frac{1}{2}$ %. Sediment: same as on August 21st. Twenty-four-hour amount of urea from this kidney, 1.4 gm., and for both kidneys, 11 gm.

Left Kidney (August 29th).—Amount of urine in twenty-four hours (through bladder), 980 c. c. Color pale; reaction acid; specific gravity 1.011; urea 1.13 %; coloring matters, chlorides, earthy and alkaline phosphates relatively diminished. Albumin, a very slight trace (too slight to quantitate), a faint trace of globulin present. Bile and sugar absent. Sediment: chiefly pus, free and in small clumps, considerable squamous epithelium, numerous small round cells, few fatty and few blood-globules. An occasional hyaline and granular cast, with renal cells and a little fat adherent. Urea in twenty-four hours, 11.07 gm.

Right Kidney (August 29th).—Amount of urine through ureteral catheter, 295 c. c. Color muddy; reddish; reaction acid; specific gravity 1.014; urea .5 %; albumin $\frac{1}{2}$ %; globuline $\frac{3}{8}$ %. Bile and sugar absent. Sediment: a large amount of pus and considerable normal blood (more than at previous examinations). Many medium and small round cells, few fatty. A few caudate and spindle cells. No casts seen. Urea in twenty-four hours, 1.47 gm.

Number of grammes of urea for both kidneys, 12.54.

The urinary sediment from the right kidney was again examined for tubercle bacilli, and none found.

Left Kidney (September 12th).—Amount of urine, 740 c. c. Color pale; reaction acid; specific gravity 1.011; urea 1.26 %; uric acid relatively increased. Other normal solids and coloring matters relatively diminished. Albumin $\frac{1}{2}$ %. Bile and sugar absent. Sediment: few squamous epithelial cells and leucocytes. An occasional normal and abnormal blood-globule. Few hyaline and granular casts, some with renal cells, little fat and an occasional one with a blood-globule adherent. Numerous small round cells, few fatty. The quantity of urea in twenty-four hours, 9.3 gm.

The urine from the right kidney could not be obtained.

Left Kidney (October 2d).—Twenty-four-hour amount, 960 c. c. Color pale; reaction neutral; specific gravity 1.010; urea 1.13 %; albumin, a trace. Sediment: chiefly squamous epithelium, and considerable pus free and in clumps. Few normal and abnormal blood-globules. An occasional hyaline and granular cast, with a little fat and abnormal blood adherent. Many small round cells, some fatty. Urea from this kidney in twenty-four hours, 10.85 gm.

Right Kidney (October 2d).—The twenty-four-hour amount of urine obtained through the tube, which was inserted into the sinus leading to the kidney, 340 c. c. Color reddish; muddy; reaction acid; specific gravity 1.010; urea .86 %; albumin $\frac{1}{2}$ %. Bile and sugar absent. Sediment: a large amount of pus and many small round cells, some fatty. Considerable normal blood. An occasional compound granular cell. Little fibrin. Urea in twenty-four hours, 1.22 gm.

Total urea in twenty-four hours from both kidneys, 12.06 gm.

Left Kidney (November 2d).—The twenty-four-hour amount of urine through bladder, 950 c. c. Color pale; turbid; reaction neutral; specific gravity 1.010; urea .76 %; albumin $\frac{1}{2}$ %; globulin, a very faint trace. Bile and sugar absent. Sediment: chiefly pus, free and in clumps; many small round cells, some fatty; few squamous cells, normal and abnormal blood-globules; rather numerous hyaline and granular casts, some with little blood and fat adherent. Urea in twenty-four hours, 7.22 gm.

Right Kidney (November 2d).—Urine obtained in twenty-four hours through sinus, 180 c. c. Color pale; reaction alkaline; specific gravity 1.013; urea .7 %; albumin $\frac{3}{8}$ %; globulin $\frac{3}{8}$ %. Sediment: large amount of degenerated pus; many small round cells, some fatty, occasional compound granule cell; few blood globules. Urea in twenty-four hours, 1.26 gm., and for both kidneys, 8.48 gm.

The remarkable skill with which the ureters and renal pelves are catheterized affords us the very best opportunity for making diagnoses from the urine thus obtained.

Previous to the time when the catheter was introduced into the ureter we were very often in doubt as to which kidney was the seat of disease, except in so far as we were guided by clinical symptoms. In the case of Mrs. H., from the first specimens obtained we were able to make the diagnosis of chronic pyelonephritis ("surgical kidney") on the right side, and what appeared to be a secondary disturbance of the left kidney of the nature of an active hyperemia, probably chiefly due to the elimination of toxins absorbed from the right kidney.

The foregoing detailed analyses have been given largely for the purpose of comparison. We found that the right kidney evidently had very little secreting structure left as the average quantity of urine in twenty-four hours amounted to only 261 c. c. (varying from 180 c. c. to 340 c. c., and the average twenty-four-hour quantity of urea 1.27 gm. (varying from 1.12 to 1.47 gm.), while from the left kidney the urine averaged 864 c. c. (varying from 636 to 980 c. c.) and the urea averaged 9.38 gm. (varying from 7.22 to 11.07 gm.) in twenty-four hours. Although the total urea in twenty-four hours for both kidneys (average 10.66, varying from 8.29 to 12.54 gm.) is far below the normal, yet it can be readily understood, when we consider the disturbance set up by the suppurating kidney, the emaciation, the limited diet and resulting low metabolism. It is apparent that the function of the left kidney, although disturbed, was not markedly retarded, as this organ was doing the greater part of the work which was originally intended for two kidneys.

Each specimen of urine from the right kidney was thoroughly examined for renal casts; but none could be found, their absence probably being due to the very extensive destruction of the parenchymatous structure and to the extreme dilatation of any tubules which remained.

The first few specimens of purulent urine from the right kidney had a strongly alkaline reaction and an exceedingly foul and disagreeable odor, evidently due to the fact that the urine and pus had been pent up in the renal pelvis for a long time and had undergone considerable decomposition. As soon as free evacua-

tion through the ureteral catheter had been established, the urine was generally found to have an acid reaction and the disagreeable odor soon disappeared.

It is interesting to note the large quantity of serum albumin and serum globulin which the urine from the right side contained, and that the quantity of globulin was practically equal to that of the albumin. Traces of serum globulin are quite frequently seen in the urine, especially urines containing pus which comes from the kidney: but it is rather uncommon to find as large a quantity and equal to the quantity of albumin. Instances have been reported in which the amount of globulin was in excess of the quantity of albumin, the reverse, however, being the rule. The only satisfactory explanation for the varying quantities of globulin in the urine and its inconstant relation to albumin is that serum globulin is not readily diffused through the animal membranes, whereas serum albumin is quite readily diffusible; consequently, so long as there is not a marked change in the parenchyma and blood-vessels of the kidney, globulin will be absent, or only in traces, even though the albumin may be present in considerable amount. On the other hand, if there is destruction of the parenchyma and blood-vessels, as in the case under consideration, the globulin meets with less resistance and readily passes out.

The urine of August 21st, which passed from the left kidney through the bladder, showed evidence of a chronic pyelo-cystitis. There was still evidence of this at the last examination (November 2d), as well as of an increasing disturbance in the tubules, as shown by the somewhat larger quantity of albumin and the larger number of casts.

The sudden appearance of more albumin and a larger number of casts on September 12th was probably due to the ether, which was necessarily given in order to perform the nephrotomy. This severe irritation was apparently of short duration, as the urine of October 2d had assumed its usual appearance.

Left Kidney (June 18, 1897).—The twenty-four-hour quantity of urine, 890 c. c. Color pale; turbid; reaction alkaline; specific gravity 1.013; urea 1.15 %; albumin $\frac{1}{10}$ %; a trace of globulin. Bile and sugar absent. Sediment: an immense quantity of squamous and scaly epithelium; considerable degenerated pus and many small round cells, some fatty; considerable abnormal blood; few hyaline, granular, and brown granular casts, with blood, renal cells and some fat adherent; crystals of triple phosphate. The total quantity of urea in twenty-four hours for this kidney, 10.2 gm.

Right Kidney (June 18, 1897).—The twenty-four-hour quantity of urine for this kidney, 190 c. c. Pale; turbid; acid, 1.017; urea 1.07 %; albumin $\frac{1}{10}$ %. Considerable globulin present. Bile and sugar absent. Sediment: chiefly decomposed pus; many small round cells, some fatty; a few medium and large round cells; a few secondary crystals of uric acid; some abnormal blood; no casts seen. The twenty-four-hour quantity of urea for this kidney, 2.03 gm., and for both kidneys, 12.23 gm.

This examination showed a certain amount of improvement in the condition on the *right*. The quantity of albumin and pus was less and the twenty-four-hour amount of urea more than at any previous examination. Much the same can be said of the condition on the *left*. There was still evidence, however, of a marked irritation of this organ, and remarkably low

urea (10.2 gm.) considering the improved condition of the patient, yet a decided improvement when compared with the examination of November 2d. There were still evidences of a chronic cystitis, but very few of the chronic pyelitis; in fact, it was very difficult to decide whether or not any pyelitis remained.

THE MEDICAL AND SURGICAL TREATMENT OF HARE-LIP.¹

BY J. G. MUMFORD, M.D.,

Surgeon to Out-patients at the Massachusetts General Hospital and Visiting Surgeon to the Carney Hospital.

No two cases of hare-lip are alike. They vary as much as do the faces which they deform; and so, from the simple notch in the border to the double hare-lip with complete cleft palate, each case must be treated on its own merits. And yet they have not been so treated; nor have operators, in many cases, seemed to appreciate the importance to the individual of a natural and slightly mouth. As to the child's parents, they are easily satisfied, and but too well pleased to have a hideous cavity bridged over in any fashion. With all these varieties of deformity, however, there are two main divisions for surgical purposes: those lips which are backed by a sound jaw, and those which are continuous with the nostril and a palatal cleft. In the former class the mortality is *nil*, so far as the lip is concerned, whether treated or not. In the second class the mortality is high when untreated—by some writers placed as high as 30 per cent.; when treated, the mor-



FIG. 1.



FIG. 2.

talities ranges from 2 to 15 per cent., according to Fritzsche. These deaths are ascribed, in all cases, to malnutrition, hemorrhage or bronchitis. In my opinion, by very far the most important factor is malnutrition. We hear of hare-lip babies, vigorous, puny, well nourished and rachitic; and the appropriate time of treatment for each. As a matter of fact, most of these babies are well enough at birth; and their subsequent condition depends largely upon the care and intelligence used in their feeding. If this care be used, the average infant can be brought comfortably up to the sixth or eighth week—the proper time for a hare-lip operation. Operations done earlier must be hurried and ineffectual for cosmetic purposes; if done later, except in the simple cases, the advantages of an early moulding of the nose and lateral pressure upon a cleft upper jaw are lost, in a measure.

This highly important preparatory feeding of the patient is in itself an art, and, if outside the experience of the surgeon, should be entrusted to some one skilled in infant feeding. In my experience its successful prosecution influences very largely the result of the subsequent operation, and its effects are felt even up to the period of dentition.

Ordinarily there is no difficulty in giving the medi-

¹ Read before the Warren Club, December 14, 1897.

fied milk mixtures prepared in the laboratories for infant feeding; making up a strength according to the following table:

TABLE I.

Week.	Amt. in oz. at each feeding.	Fat %	Milk sugar %	Protoids %
1 1st	1	2.00	5.00	.75
2 2d	1½	2.50	6.00	1.00
3 3d	2	3.00	6.00	1.00
4 4th to 6th	2½-3	3.50	6.50	1.00
5 6th to 8th	3-3½	3.50	6.50	1.50
6 8th to 16th	3½-4½	4.00	7.00	1.50
7 16th to 24th	5+	4.00	7.00	2.00

These mixtures, with an alkalinity of 5 to 6 per cent., answer all practical purposes. When milk laboratories are not accessible, home modification may be done according to the following table:

TABLE II.

Week.	Cream 16% oz.	Milk oz.	Lime-water oz.	Water oz.	Sugar of milk in 3½ 3 measures.
1 1st	4	0	1	15	2
2 2d	5	0	1	14	2½
3 3d	6	0	1	13	2½
4 4th to 6th	7	1	1	11	2½
5 6th to 8th	7	1	1	11	2½
6 8th to 16th	8	0	1	11	2½
7 16th to 24th	8	2½	1	8½	2½

Amount at each feeding as in previous table.

Lines 1, 2, 3, etc. in Table II, are equivalent to lines 1, 2, 3, etc. in Table I.

In administering the milk there are a few practical hints which should be borne in mind. The food is best fed from a spoon; the various shields and patent nipples are needless and troublesome. The child should be placed on the bed in a half-reclining position during feeding, because when prone the milk is more likely to run up into the nares. If there is a cleft palate, the most scrupulous care must be observed to keep clean the mouth and nares; for this, a cotton stick dipped in a weak boric acid or borax and water solution is best. Plenty of clear water to drink should be given between feedings, as the mouth necessarily is very dry, and by the use of the water a proper action of the bowels is maintained. Stimulants should be given if there is pallor or a flabby skin—one or more drops of brandy with each feeding. The brandy should be increased for two days before operation, and on the day of the operation, in any case, a goodly measure should be allowed.

Most authorities are now agreed that chloroform is the best anesthetic for the operation, on account of its non-irritating action on the lungs. This may be so; but in some considerable experience with ether, I have seen no cause to complain of it; and I see to it that it is properly given. I have liked its stimulating effect.

As to the time for the operation itself, I make one exception to my rule laid down. In simple notched

lips not extending to the nostril I think it well to wait until the child is three or four years old, as he can then be trusted to manage the wound carefully, and a most exact plastic operation can be done with the more mature tissues.

In these cases, and indeed in all others, so far as ultimate beauty of result is concerned, the greatest attention must be paid to the finish of the vermilion border. For this purpose the Nélaton or Malgaigne operations (Figs. 1 and 2) are the only ones to be used. The old-fashioned slashing cuts with scissors, and the quick sewing up, are bad surgery, and should never be used except when desperate hurry is demanded.

There is a large variety of other flap operations described by authors: Hagedorn's, Mirault-Langenbeck's, Simon's, Giralde's and many more. They are all designed on the dovetail principle; their object being to fill in the cavity and provide a smooth red-lip



FIG. 3.



FIG. 4.

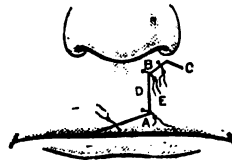


FIG. 5.



FIG. 6.

border. In practice I do not think them applicable to infant lips. They sometimes answer admirably for older children and adults, but not for restless crying babies. At best they leave an irregular scar instead of a straight line, and there not infrequently results an ugly notch in the lip border. A type of this dovetailing operation is shown in the sketch of Giralde's procedure (Figs. 4 and 5). The objection to it, as to most of the others, is that the thin flap *A* shrinks up, and that, if the mortising done with flap *B* does not hold by the first intention, we get a broad ugly scar. Ordinarily the long flaps of Malgaigne (Fig. 6) are not necessary, but the modified Malgaigne may be used, as shown in the cut (Fig. 3). This amounts to little more than cutting off the ends of the long Malgaigne flaps, which may protrude too far.

This same plan applies to double hare-lip operations in which it is usually unnecessary to sacrifice any considerable amount of tissue. In these cases the median portion may usually be trimmed into a V-shape (Fig. 9), as demonstrated in the cut, and the side flaps are then easily adjusted, as in cases of single hare-lip.

It is not necessary here to go into the treatment of the intermaxillary bone. Suffice it to say that it can usually be forced into position and utilized. In very rare cases it must be sacrificed.

It has been claimed by some writers that double hare-lip operations should be postponed until the second or third year of life, but I prefer to do them within the first two months if possible, for I am con-

vinced that the same advantages apply to the early operation in these cases as to those of single hare-lip. In all operations, except for a simple notch, the soft parts about the alveolar processes and nares should be dissected free from the upper jaw with blunt-pointed scissors. By clinging closely to the bone no hemorrhage will result. When the flaps are being cut the coronary arteries may be controlled easily by an assistant's fingers. Scissors should not be used in cutting the flaps. They are inaccurate, sometimes bruise the tissues, and do not leave so clean and broad a cut surface. A narrow-bladed knife is best.

The old-fashioned hare-lip pins have gone out of general use, and very properly. Even when removed on the third day—the old rule—they leave a scar; and the third day is too early for the removal of deep sutures. In all operations, for both single and double hare-lip, one shotted stitch of silver wire is sufficient to anchor the parts. This is indicated by the dotted



FIG. 7.



FIG. 8.

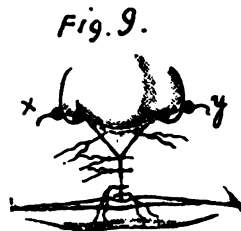


Fig. 9.

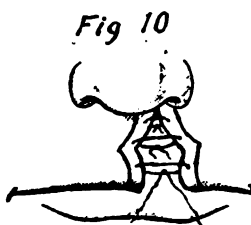


Fig. 10

line *xy* in Fig. 9. It is inserted in the fold behind the alæ, lies in that natural furrow, takes all the strain off from the severed deep parts, holds in place the intermaxillary bone, and leaves no perceptible scar. When this stitch has been placed and the parts approximately brought into position, the question of passing the remaining stitches is one simply of time and patience. In all extensive operations, and always in the case of babies, I have adopted the method of J. C. Warren. Working with a stout silk suture, threaded with a needle at each end, the stitch is entered close under the skin, in the freshened lip border, is passed deeply through the underlying soft parts and buccal mucous membrane, and tied strongly to its fellow inside the mouth (see Fig. 10). Three or four of these heavy stitches suffice to hold the parts firmly in excellent apposition; when tied the ends should be cut long. The slight gaping in the skin flaps of the external wound is closed with a few very fine intestinal sutures threaded in small embroidery needles, and are passed as close as possible to the cut edges, the greatest care being taken not to draw them tight enough to invert the skin. The fine superficial sutures must be removed on the third day, and it will be found that no perceptible stitch scar results. The deep stitches are removed from the inside of the mouth on the fifth or sixth day, and the wire bridge on the seventh or eighth day.

By no means the least part of the operation is the

application of a proper sustaining strap from cheek to cheek. The old-fashioned adhesive plaster is a wretched device, and should never be used; it is unclean, sweats the parts, and checks any discharges which may collect. The familiar *crêpe lisse* "butterfly" is the best support. It is light, clean, slightly and does not check discharges. Before applying it, it is well to paint the wound inside and outside the mouth with compound tincture of benzoin, to lay a soft absorbent pad across the external wound, and then firmly to secure the "butterfly" with flexible collodion.

Silkworm-gut is sometimes used for sutures. It is applicable only when tied outside the lip. When so used it always leaves scars.

For older children and adults, I have had most excellent and satisfactory results with buried catgut. By its use only can an approach to an aseptic operation be made. The firm resisting tissues of an adult offer an excellent hold for the buried stitch, and if there remains a slight gaping of the skin it can be closed with the fine intestinal sutures.

An absolutely aseptic programme can never be carried out in any hare-lip operation, but some attempt should always be made to render the field approximately sterile. The constant use of boric-acid washes both before and after operation should be maintained. At the time of the operation the upper lip should be thoroughly wiped over, inside and out, with alcohol, which in its turn is to be washed off with water.

During convalescence, especially after the removal of the stitches, some spreading of the upper part of the wound should not discourage the surgeon. As a rule, if the vermilion border holds, the open cleft above will heal, by the second intention, in two or three weeks. There is often a very anxious time about the end of the first week, but the holding of the border is a sure sign that all will yet go well.

No one feature in the whole treatment of hare-lip is of more importance than that of the feeding of young infants during convalescence from the operation. As an immediate result of the operation there is almost always a considerable gastro-intestinal upset. This is in part due to the anesthetic and in part to shock, but by far the most important factor is the blood which has been swallowed. No matter what the form of operation or the position in which the child is held, a very considerable amount of blood finds its way into the stomach. If this is vomited, so much the better; but usually it remains and makes trouble. There then follow several days of diarrhea, undigested stools, pain, colic, sometimes loss of appetite and occasionally vomiting. These symptoms may persist many days and do not infrequently most seriously threaten life. More often, however, they merely debilitate the patient and seriously delay the healing of the wound. I have seen cases, in which a total lack of success in closing the lip was obviously due to a low vitality in the wound through malnutrition in an infant hitherto perfectly strong and healthy.

Of the very greatest importance, therefore, is proper care during convalescence.

The ordinary rules for the treatment of an acute mycotic diarrhea are here applicable.

On the evening after the operation a brisk purge should be given—castor oil or calomel; and the child should be put on a weak cream mixture. Sometimes even this is not borne, and a thin barley-water mixture or weak strained chicken-tea should be substituted for

it. Meanwhile liberal doses of brandy should be given; and, if diarrhea persists, bismuth subgallate, in three-grain doses or more, should follow each feeding. Gradually the diet may be strengthened as convalescence progresses, until the normal mixtures given in the tables have been reached. At the same time plenty of water to drink should be given—a precaution most often neglected by uninstructed nurses.

A *résumé* of the important points in the treatment of hare-lip, therefore, will include the following considerations:

(1) Hare-lip babies are not necessarily feeble at birth, and by proper feeding can be kept up to the normal standard.

(2) Keep the field clean with aseptic washes before the operation.

(3) Operate in the sixth to the eighth week.

(4) Do not slash with scissors, but cut and trim carefully with a knife.

(5) Free the upper lip thoroughly from the jaw.

(6) Anchor the nares with shotted wire.

(7) Use no pins or heavy outside sutures.

(8) Use *crêpe lisse*, not surgeon's plaster.

(9) Leave the heavy inside stitches for six days.

(10) After operation give especial attention to the care of the bowels and to proper feeding, as on this very often hangs the whole success of the operation.

BITS OF MEDICAL FOLK-LORE.

BY G. W. MOOREHOUSE, M.D.,

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THIS article gathers together for preservation certain remnants of the thought of the past, as found in the folk-lore or popular superstitions of the present. The subject-matter affords a sufficient reason for presenting it to a medical audience rather than to the more general one to which the enumerator of popular superstitions usually addresses himself.

About one-half the items relating to pregnancy and child-bed were collected by externes of the Boston Lying-in Hospital, the majority by the writer. The rest of these items as well as most of the miscellaneous superstitions are from the general collections of one of our best-known workers in American folk-lore.

There is a great difference between the mere repetition of a bit of folk-lore when circumstances recall it to the memory and action based upon a similar superstition. We might think that belief in witchcraft had passed away long since if it were not for our daily newspapers which tell us every now and then of the persecution or actual murder of one who has in some way gained the unsavory reputation of being a witch. In this article the writer has attempted to show that in some cases enough value is still accorded to folk remedies to ensure their occasional use.

CHIEFLY OF PREGNANCY AND CHILD-BED.

A child was born to a Russian Jew, and upon the delivery of the after-birth a neighbor of the same race wished to have it. After much questioning the externe learned that she had heard that (1) to eat a placenta is a sure cure for sterility and proposed to make an experiment in therapeutics.

2. Often in pregnancy the woman is very well while the husband looks very wretched. "No," said

the Irish mother of a large family, "I never feel better in my life than when I am in a family-way, for my old man, you know, he takes all my sickness." In a little higher grade of society two women were gossiping. Said one, "Have you noticed Mr. So-and-so, how miserable he looks this summer?" "Yes," said the other, "don't you know the reason? Why, his wife is pregnant."

3. If a pregnant woman stir boiling soap it will not "come" (Md.).

4. If when a woman is pregnant she touch a piece of meat it will spoil within an hour. It is said that butchers of the Isle of Jersey will not allow women to handle their meat for fear of loss from this cause.

5. Pregnant women must avoid the smell of paint, else they'll miscarry (Mass.).

6. A mole on the left breast is a sign of easy child-birth (Nova Scotia).

7. If a pregnant woman steps on a tangled rope or string, the child will have the cord around its neck (Russian Jew).

8. If a woman in labor puts her hands above her head, it is said she thus interferes with the descent of the child (Russian Jew).

9. By an examination of the placenta held in the hand it is possible to tell how many children the woman is to have (Russian Jew). An attempt to secure further information on this interesting subject elicited only the reply, that "the doctor always knows," the rebuke being doubtless unintentional.

10. White streaks in the cord show the number of babies (Russian Jew).

11. If the mother has a good deal of heart-burn during her pregnancy the infant will have a good deal of hair on its head (Nova Scotia).

12. A "longing," the abnormal craving of a pregnant woman for some special article of diet, should be gratified, otherwise the child will be marked by a picture of the desired food (common in England and America).

13. Should a pregnant woman be hit by any object thrown at her the baby will have a birth-mark on a corresponding spot (Russian Jew). The authority for this item told of the regret expressed by a neighbor who had accidentally hit her with some article of wearing apparel while sorting clothes for the wash.

14. If anything occurs during pregnancy to startle the mother, and so, according to popular belief, to "mark" the child, the mark may be transferred from visible parts, for example, the face, to invisible, for example, the leg, by the mother quickly rubbing that part of her own anatomy to which she wants the mark transferred and wishing it there (Ireland).

15. The first four months of pregnancy are those of greatest danger to the child (Russian Jew).

16. During the first four months of pregnancy a woman who sees any animal may give birth to that animal, that is, to a monster. To avoid so unpleasant an accident she should gaze steadily at it until she becomes tired of looking, and all will be well (Russian Jew).

"A woman before her child is born must not look hard at any animal, for the child may be like it," says the American Indian, and illustrates by examples.

17. If a mother during pregnancy is startled by a hare crossing her path, the child is liable to have a hare-lip (Ireland).

18. If a pregnant woman passes an enemy, and he

knows of her pregnancy, he may cause cleft-palate or hare-lip in the child by splitting a piece of wood or chopping up in a doorway with an axe (Russian Jew).

19. A pregnant woman helped her husband butcher his hogs, and when her child was born it had a pig's head (Mass.).

20. The placenta should be burned and not buried, for the greater safety of the woman in her convalescence (Irish).

21. A placenta should be buried not burned: it is bad for the woman to have it burned (Russian Jew).

22. An Irish woman living near Boston Harbor asked that the placenta be thrown into the water, so that the child might never meet his death by drowning.

23. Do not comb a parturient patient's hair while she is in bed for fear of child-bed fever (Nova Scotia and New England).

24. A parturient patient drank the urine of her son, probably as a diuretic, a fact to the truth of which a physician bears testimony. This occurred in New Hampshire.

25. Cow-dung, fresh as possible, has been plastered on an inflamed breast, commonly known as "bealed breast," within twenty-five years in Cape Breton.

26. The belief that the possessor of a caul will not meet his death by drowning is probably known to all.

27. A child born with a caul is born to see sights and wonders (Nova Scotia).

28. When a child is born with a veil (caul) it should be removed downward, for if it be removed from below upward the eyes will be opened to foresee death, sickness and other ills (N. Y.).

29. If a baby grips hard with its hands it is not silly (Nova Scotia).

30. If a baby can sneeze it is not an idiot (Nova Scotia).

31. If a pregnant woman kicks a cat the baby will have milk in its breasts, that is, mastitis (Russian Jew). The Irish call this witch's milk.

32. If a baby has jaundice some object of gold should be used about its dress and it will recover (Italian).

33. Tie a new coin in the baby's belly-band and the cord will drop off clean (Italian).

34. It is a common belief that a wet-nurse may transmit her disposition or features to the bantling (New England).

35. An unsatisfied craving, a "longing," which, as we have seen before, may give the child a birth-mark, will cause it to have through life the habit of running his tongue out (Ireland).

MISCELLANEOUS.

36. To wash the face with a diaper on which a newborn babe has urinated will prevent or cure freckles (U. S. and Canada).

37. Urine is used as a cure for chapped hands (New England and Canada).

38. Boys urinate on their legs before going in swimming to prevent cramps (common in U. S.).

39. Human urine has been used in bronchial affections (New Brunswick).

40. The patient's own urine was administered in Staffordshire, Eng., for gravel.

41. Within recent years a woman in England has been given her own urine after a severe illness to prevent "fits."

42. Menstrual napkins should not be burned.

43. For scanty menstrual flow let a young woman drink menstrual blood of a woman who flows freely, mixed with urine of a man (Pa.).

44. "Rabbit tea" (made of rabbit dung dried and steeped) is given for interrupted menstruation. Patient is not to know the nature of the remedy (Utah).

45. To cure warts on a man rub them with menstrual blood (Italian).

46. If a woman take salt fish from the keg during menstruation the remaining fish will soon spoil (N. Y.).

47. There seems to be a popular belief in a climacteric for men. It manifests itself in nervous and other disturbances, and is supposed to occur at the time of the corresponding change in his wife's life. It does not imply in his case a loss of the power of procreation.

48. Water standing in the depression of cow-dung was formerly recommended as a certain cure for pulmonary consumption (N. Y.).

49. The sheep-dung tea cure for measles is said to be extensively used in New England.

50. A physician in Indiana reports that goose-manure is supposed by some in his vicinity to cure pimples on the face.

51. A poultice of fresh, warm cow-dung is used for rheumatism (N. Y.).

52. Oil tried from the penis of a hog and applied to the loins of a child suffering from weakness of the kidneys or bladder cures the disease (Nova Scotia).

53. To remove tumors from the eyes (eyelids) rub about the lids with the hands of a corpse (N. B.).

54. It is not well to sleep with the hands above the head, for by so doing one draws the blood to the head (Russian Jew).

Clinical Department.

A CASE OF RESTORATION OF THE FEMALE URETHRA AND CLOSURE OF THE BLADDER, AFTER EXTENSIVE LACERATION.¹

BY M. H. RICHARDSON, M.D.

In the following case Thiersch's principle used in restoring the urethra in cases of epi- and hypo-spadias in the male, was successfully employed. This principle, as applied to the female urethra and bladder, consists in the use of extensive flaps superimposed in such a manner that the internal surface of the urethra and bladder is supplied by vaginal mucous membrane; at the same time the denuded vaginal surface is restored by shifting a flap sufficiently large to cover it. The procedure will, I think, be made clear by reference to the accompanying diagrams.

The patient, Mrs. M., aged twenty-six, had had, in May, 1897, a very difficult labor. The attending physician found a deformity of the bladder and an exaggerated hymen. There had never been any penetration. With the patient on the table in the dorsal position, no opening into the hymen could be found. The child was delivered with difficulty and by the use of instruments.

After confinement there was inability to control the bladder.

On examination I found an entire absence of the urethra. There was in its place an irregular line of

¹ Read before the Obstetrical Society of Boston, November 16, 1897.

everted mucous membrane extending a half inch back into the base of the bladder.

A flap was first made to the patient's right of the fissure and corresponding to it in length. The base of this flap was the line of everted mucous membrane. Turned toward the left, this flap presented its mucous surface upward, and was destined to be the

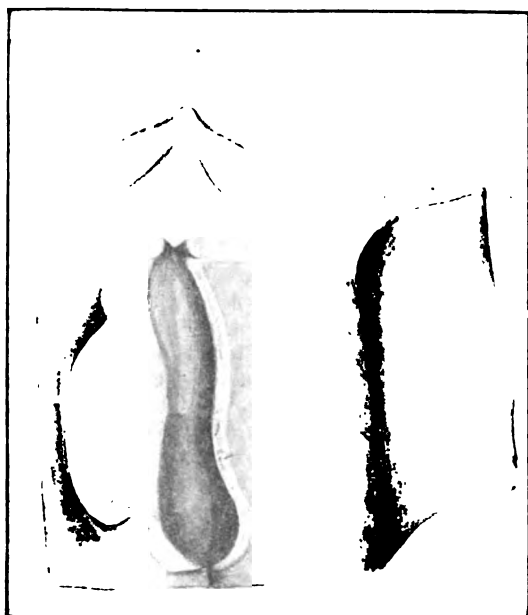


FIG. 1.

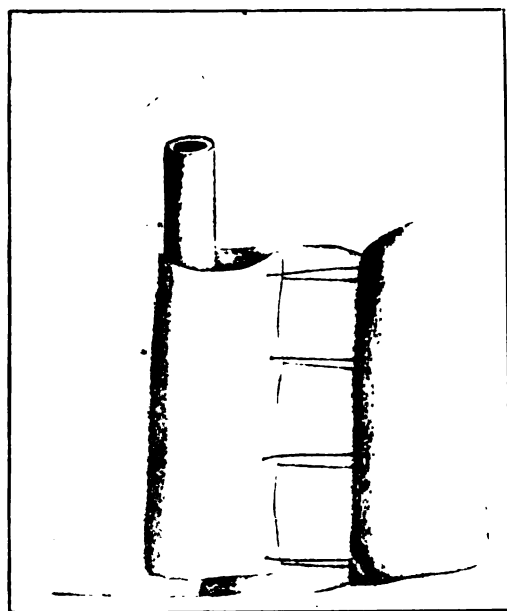


FIG. 2.

floor of the urethra (see Figs. 1 and 2). The second flap, on the patient's left, was a little longer than the first, and began at the left edge of the everted urethra. This flap had its base about half an inch to the left of the urethra (Figs. 1 and 2). A catheter was next placed in the urethra, and over it the first flap was spread. This flap was fastened to the denuded surface of the second flap by four silk sutures (Fig. 2).

The catheter was thus covered in by vaginal mucous membrane. The second flap was then brought over the first and to the right, where it was fastened by numerous fine silk stitches (Fig. 3).

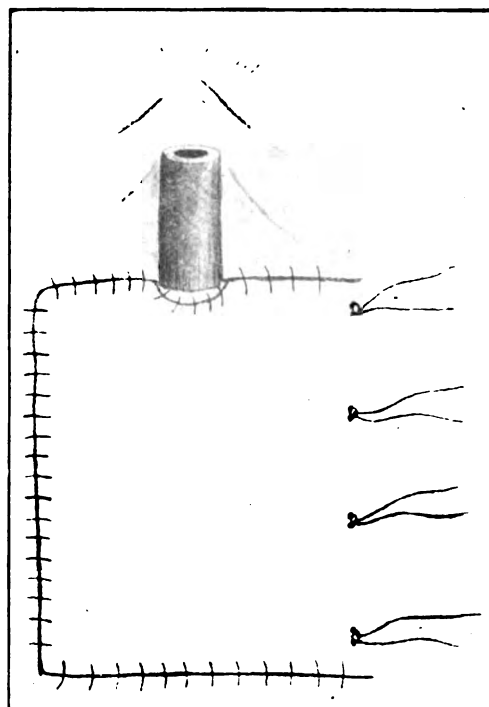


FIG. 3.

It will be seen that mucous surface was brought to mucous surface, and raw surface to raw surface. Immediate union resulted without leakage. The patient not only had a tight bladder, but she could control it. Since operation there has been no loss of control, but micturition is frequent, especially when she is erect.

This method of closing the fistula presents a double chance for success; for if the mucous approximation is imperfect, as it is likely to be from the impossibility of using sutures, the denuded surfaces, opposed to each other over comparatively broad areas, can be most closely approximated and accurately sutured.

I have used the method very successfully in restoring the male urethra.² The difficulties in applying it to the female are somewhat greater, for in addition to the restoration of the canal the power of controlling the bladder through the sphincter vesicæ is essential. In this case the functions of this muscle were completely restored.

MISSED EVERYTHING EXCEPT VACCINATION.—An old Georgia darkey with his arm in a sling, was talking to another on a West End car yesterday. "Yes, suh!" he said with emphasis. "I gone up now, fur sho'! You see dis arm in de sling, don't you?" "Yes." "Well, suh," the old man continued by way of explanation, "I'll be eighty years old next harvest; I done see lots er trouble in my day, but by de grace er God I miss de Ku-Klux, I miss de Vigilance Committee, I miss de White Caps, en I miss de Regulators, but now in my old age, please God, waxinators kitched en cut me." — *Atlanta Constitution*.

² See paper on this subject by Dr. H. A. Lothrop, Boston Medical and Surgical Journal for June 8, 1897.

Medical Progress.

REPORT ON PATHOLOGY.

BY JAMES H. WRIGHT, M.D.,

Director of the Laboratory of the Massachusetts General Hospital; Instructor in Pathology, Harvard University Medical School.

THE POISON OF TETANUS.

F. BLUMENTHAL¹ has prepared extracts from the spinal cord and other tissues in four cases of tetanus, and has injected these extracts into animals. These, from three of the cases, produced tetanic symptoms and death.

Summing up the results of all his experiments with materials from cases treated with or without antitoxin, the author concludes that in the organs of individuals dead of tetanus two different poisons are present, both of which are capable of producing tonic convulsions. One of these is identical with the poison contained in the filtrate of bouillon cultures of the tetanus bacillus (the so-called tetano-toxin). The other is the product of a combination between the tetano-toxin and the substance of the tissue cells, and may be called the "organ poison."

These two poisons show certain marked differences. The "organ poison" withstands high temperatures better than the tetano-toxin, and acts upon animals without the interval of incubation, which is so marked a property of the poison of the bouillon culture. Moreover, the tetanus antitoxin which neutralizes the tetano-toxin seems to have less effect upon the "organ poison." On this account, when large amounts of the latter are present in the body, the antitoxin fails of effect.

The author believes that the tetano-toxin, or uncombined bacillary poison, is neutralized by the antitoxin, and that the "organ poison" alone may be answerable for the death of the individual when antitoxin has been administered. He advances, in support of this observation, that in all his cases which were treated with antitoxin the blood was not poisonous for animals, while in the majority of cases which had received no antitoxin it was poisonous.

BACTERIA IN THE CIRCULATING BLOOD IN INFECTIOUS DISEASES.

Kühnau² has made an extensive series of cultures from the blood during life in a large number of cases of bacterial infection, including septic-pyemic processes, endocarditis, localized purulent inflammations, tubercular mixed infections, miliary tuberculosis, influenza, pneumonia and typhoid fever. The blood was obtained in all cases by puncture of veins, in the majority of cases the median vein being laid bare for this purpose. The vein was punctured with a sterilized canula, and the blood was collected in sterilized flasks containing 50 c. c. of sterile bouillon; 10 c. c. of blood was the quantity taken for examination. After mixing the blood and bouillon, a number of agar-plate cultures were made from the mixture.

The results for the various classes of cases may be summarized as follows:

Typhoid Fever.—41 cases. These were all either in the stage of roseolar eruption or in the acme of the disease. In ten cases typhoid bacilli were demonstrated

in the blood of the arm vein. The number of bacilli found was always small.

Septic-pyemic Conditions.—23 cases. All of the gravest sort, of which 19 died. In only three of these 23 cases were bacteria found in the circulating blood, and these in small numbers. The streptococcus pyogenes and the staphylococcus pyogenes aureus were the organisms concerned. The blood was withdrawn in two of these cases shortly before death, in the third case during a chill. Earlier cultures were negative.

Ulcerative Endocarditis.—12 cases. In all samples of blood were repeatedly withdrawn and tested, but in only one case, and this shortly before death, was the presence of bacteria demonstrated in the blood. The organism in this case was one of the pyogenic cocci.

Acute Rheumatism.—Sixty-seven cases were examined, but in only one case, which was complicated by a pleuritis, were bacteria found. This case showed infection with the staphylococcus pyogenes aureus.

Localized Inflammatory Processes, including meningitis, erysipelas, septic venous thrombosis, phlegmonous angina and various pus formations. Not one of these cases, all of which presented the signs of a grave toxemia, gave positive results.

Phthisis Pulmonum and Miliary Tuberculosis.—12 cases. Among these were four with terminal miliary tuberculosis. All showed symptoms of secondary infections. The cultures in all these cases were negative. In but one case were tubercle bacilli demonstrated in the blood by animal inoculation.

Acute Croupous Pneumonia.—9 cases. Three were fatal. But one case gave a positive result, and that near the death of the patient. Animal inoculations with the blood were followed by the characteristic septicemia produced by the pneumococcus in two of the cases. One of these was the case in which the pneumococcus had been found with the cultures.

Influenza.—12 cases. In none was the influenza bacillus cultivated from the blood. There was hyperpyrexia and marked constitutional disturbance in all of the cases.

THE DIFFUSION OF BACTERIA IN CADAVERS.

The preceding investigation, as well as certain others, shows that the invasion of the blood intra-vitam by bacteria in infectious processes in demonstrable numbers is not the rule. On the other hand, it is a common observation at autopsies to find bacteria widely diffused throughout the blood and organs, sometimes in large numbers, not only in cases of fatal infectious disease, but in other cases as well. In well-defined infectious processes this phenomenon is believed to be sufficiently explained on the ground of an invasion of the blood shortly before death by the specific bacteria, and then post-mortem multiplication. In other cases, however, there may be little or no clinical evidence of infection, and yet the bacteriological examination of the viscera may show the presence of more or less numerous bacteria. The bacteria found in these cases are of various species, and include the pyogenic cocci; but the organism which is most commonly found is the bacillus coli communis. The clinical significance of these post-mortem findings is very doubtful and their causes have never been satisfactorily determined. It has seemed probable that these bacteria may under certain conditions rapidly invade the tissues after death from the bronchi and intestinal canal, and that

¹Zeitschr. f. klin. Med., Bd. xxxii, 1897.

²Zeitschr. f. Hygiene u. Infektionskrankh., Bd. xxv, 1897.

they are, so to speak, the advance guard of the army of putrefaction.

A. Hauser³ has studied the question of such purely post-mortem invasion experimentally. He injected bouillon cultures of various well-known bacteria into the trachea and into the peritoneal cavity of human and animal cadavers, in the case of the latter in other situations also, and then made bacteriological examinations of various organs and fluids after different lengths of time. The blood of the heart, the pericardium, liver, bile, kidneys and pleural or peritoneal cavities were examined. The animal cadavers were examined up to twenty-four hours after the injection, the human cadavers up to fifty-two hours.

He found that invasion by the injected bacteria of some of the situations above mentioned was frequent — positive results being obtained in 29 out of 31 animal and in 12 out of 18 human cadavers. In the case of the animals the places invaded by the bacteria depended to a considerable extent upon the position of the body. Thus, if after peritoneal injection the body was suspended by the hind legs, the bacteria were almost always to be found in the liver, pleura and blood of the heart.

GENERAL LYMPHADENOMATOSIS OF BONES.

F. P. Weber⁴ reports an unusual case in which "all the ribs, the vertebral column, the clavicles and the skull were found to be the site of a very vascular pulpy neoplasm, growing from the interior of the bone outwards. The ribs were all converted into delicate tubes formed of periosteum with only a thin imperfect shell of bone." They were easily fractured and many old fractures were indicated by callus. Nodular enlargements were also present from distention by the growth. A similar replacement and softening of the bony structure of the vertebral column and sternum was present. In the skull and in the clavicles the condition was less marked. The other bones were not examined. Microscopically the neoplasm was found "to consist of small mononuclear round cells, with none or scarcely any substance between them. Interspersed amongst the cells are small blood-vessels with swollen looking, almost hyaline walls."

There were no metastases of the growth except in the cervical lymph-glands. The author considers that the term "sarcoma," or "lympho-sarcoma," is unsuitable for the case on account of the absence of any infiltration of the tissues adjacent to the bones and the comparatively insignificant extent of the metastasis.

Cases somewhat similar to this one have been described and denominated "multiple myeloma," but these cases have not always presented the same histological appearances.

It is greatly to be regretted that no microscopical examination of the blood was made in this case because of its possible connection with some clinical form of blood disease. During life the individual complained of various rheumatic pains and presented a considerable kyphosis, which was progressive.

CEREBRAL INFECTION WITH THE BACILLUS OF INFLUENZA.

The invasion of the cerebral tissues by the influenza bacillus has been regarded as of doubtful occurrence, the cases of such invasion reported not being accepted as demonstrative.

Pfuhl,⁵ who has published a number of such cases, has recently contributed three more to the list.

In two of these cases the only definite anatomical change recognized macroscopically was an increase of the cerebro-spinal fluid, which was somewhat blood-tinged. The other case presented the appearances of purulent lepto-meningitis. The bacillus of influenza was cultivated from the cerebro-spinal fluid, and its identity apparently well-established in two of the cases, while in the other case a bacillus, resembling that organism in morphology, was found microscopically, but not by cultures, in the cerebro-spinal fluid and pleural effusion.

One of these cases was of peculiar interest, in that the microscopical examination of the various viscera as well as of the tissue of the brain and spinal cord showed the presence in all of these tissues of numerous small bacilli like influenza bacilli in morphology.

The case was a rapidly fatal influenza with cholera-like symptoms.

In the microscopical sections of the brain, lymph spaces, blood capillaries, and small arteries were found containing these bacilli, in some instances in clumps and masses. They were also seen inside the large nerve cells, sometimes in considerable numbers and also scattered throughout the tissue. The spinal cord showed a somewhat similar condition. No reaction or inflammatory change was evident in the tissue. The small intestine showed some loss of epithelium, desquamation of the cells of the glands and edema of the submucosa. On the surface of the mucosa the influenza-like bacilli were present in enormous numbers. They were also observed in glands, in the lymph vessels and scattered through the submucosa. The bacilli were also found more or less numerously in the liver, kidney, pancreas and axillary lymphatic gland. On the pneumonic exudate of the lungs they were also numerous as well as in the interstitial tissue and capillaries of the organs.

It is unfortunate that the identity of these bacilli, found in such numbers microscopically in the various tissues, was not established by cultures. As the case stands it is by no means certain that the author had influenza bacilli before him, but the observations are suggestive.

THE NATURE OF THE FLAGELLATE FORMS OF THE PARASITE OF MALARIAL FEVER.

In the blood of birds, parasites similar to the parasite of malarial fever are sometimes found. Opie⁶ about a year ago called attention to the fact that in the hematozoan infection of crows, two forms of the adult organism could be distinguished, and suggested that one of these forms only might be capable of developing into the flagellate form of the parasite.

MacCallum⁷ has more recently found that Opie's suggestion is the fact, and has further found that the flagella of the parasite may separate themselves from it and, as small motile filaments, may be observed to wriggle about the other adult forms. One only of these motile flagella penetrates the body of the parasite, which then undergoes certain changes in shape and appearance to become transformed into another form of the organism.

The occurrence of the flagellated forms of the malarial parasite of course suggests a similar function for these flagella and MacCallum has been able to

³ Zeitschr. f. Heilkunde, Bd. xviii, 1897.

⁴ Journal of Pathology and Bacteriology, January, 1898.

⁵ Zeitschr. f. Hygiene u. Infektionskrankh., Bd. xxvi, 1897.

⁶ Bulletin of the Johns Hopkins Hospital, vol. viii, March, 1897.

⁷ Loc. cit., November, 1897.

demonstrate that such is the truth. From his observations of the blood in a case of malarial infection of the æstivo-autumnal type, in which there were a great number of so-called "crescents," he writes as follows:

"These (the crescents) in a freshly-made slide of blood, with very few exceptions, retained their crescentic shape for only a few minutes. They soon drew themselves up, thus straightening out the curves of the crescent, while shortening themselves into the well-known ovoid form.

"After the lapse of ten or twelve minutes, most of them were quite round and extra corpuscular, the 'bib' lying beside them as a delicate circle or shadow of the red corpuscle. After twenty to twenty-five minutes certain ones of these spherical forms became flagellated; others, and especially those in which the pigment formed a definite ring and was not diffused throughout the organism, remained quiet and did not become flagellated. In a field where an example of each form could be watched the flagella broke from the flagellated form and struggled about among the corpuscles, finally approaching the quiet spherical form; one of these entered, agitating the pigment greatly, sometimes spinning the ring about. The rest were refused admission, but swarmed about, beating their heads against the wall of the organism. This occurred after thirty-five to forty-five minutes."

After this the organism became somewhat larger with long movements in its interior and no further changes were observed.

MacCallum regards this process which he has observed in both species of hemotozoa as one of fertilization and the motile flagella as a form of spermatozoa.

THE STREPTOCOCCI ERYSIPELATIS AND PYOGENES.

Wm. Bullock,⁸ working in the British Institute of Preventive Medicine, has recently tested this question from another point of view. He immunized a horse against the streptococcus from a case of erysipelas, and then inoculated the animal with the streptococci from an abscess. The horse showed himself immune to this streptococcus also, thus affording an additional confirmation of the view that these two streptococci are of one and the same species, that is, identical.

THE BACTERIOLOGY OF GONORRHEA.

Alex. G. R. Foulerton⁹ has made a study of the bacterial flora of gonorrheal pus. He has found that the cocci which occur most frequently along with the gonococcus is the staphylococcus pyogenes aureus and a coccus growing in white colonies which he names the *diplococcus urethræ communis*. The presence of other bacteria in gonorrheal pus beside the gonococcus was noted in three cases which were examined within twenty-four hours after the first appearance of the discharge. If these other bacteria were present in any considerable number in these very fresh cases the observation is not in harmony with those of other bacteriologists. The relative numbers of these organisms is not stated by the author.

The reaction of the purulent discharge from the urethra was tested in 27 cases. In 19 the reaction was alkaline, in six acid and in two neutral.

As a culture medium for the gonococcus, Foulerton recommends small agar plates smeared with a drop of

blood from the finger. The blood can be readily obtained in sterile condition by simple methods of disinfection and cleansing of the skin. On this culture medium the author thinks the gonococcus manifests a distinct tendency to outgrow other bacteriæ during the first twenty-four hours.

A CASE OF PSEUDO-HERMAPHRODITISMUS MASCULINUS INTERNUS.

H. Stroebe¹⁰ found this malformation at the autopsy of an individual of masculine appearances. The external genitalia were normal except that the scrotum contained no testes. The internal examination showed an elongated uterus-like body extending upward from the posterior aspect of the prostate and lying posterior to the bladder and anterior to the rectum. This "uterus" had two long Fallopian tubes originating on either side of the fundus in the usual manner and extending laterally in the folds of a broad ligament to the sides of the pelvis. These Fallopian tubes ended blindly, having no fimbriated extremities. In the position of the ovaries were two ovoid flattened bodies which microscopical examination showed to be two atrophied testes. Each of these had a more or less rudimentary epididymus from which began a very tortuous vas deferens running near the Fallopian tube to the "uterus." The uterus-like body was joined to the posterior portion of the prostate and contained a canal or cavity along its entire length, which opened into, or became continuous with, a normal *sinus peculiaris* in the prostatic urethra. The colliculus seminalis was well-developed, and the prostate gland not specially remarkable. The lumen of the canal of the "uterus" in the superior portion of the organ resembled in shape that of the normal uterus, and was continuous with the lumina of the Fallopian tubes. About midway of the organ this canal narrowed, and then widened to again become narrow, with a diameter of a few millimetres. In the inferior portion of this "uterus" a part of the vasa deferentia, the rudiments of the vesiculæ seminales and the ducti ejaculatorii are included in its wall. The last-named opened on the colliculus seminalis. This inferior portion is regarded as representing a rudimentary vagina, while only the superior portion represents the uterus.

The case shows very clearly that the *sinus peculiaris* is rightly to be regarded as the homologue of the uterus and vagina, as embryology teaches.

INFECTION WITH THE TYPHOID BACILLUS WITHOUT TYPHOIDAL LESIONS.

H. Chiari and E. Kraus¹¹ report five cases of infection with the typhoid bacillus, in which the post-mortem examination failed to reveal any lesions which were indicative of typhoid fever. These cases clinically were diagnosed typhoid fever, the Widal serum reaction being positive in each case. In four of them there was extensive tuberculosis of the lungs, larynx and intestine. In the fifth case there was pyæmia.

Typical typhoid bacilli were demonstrated in the bile of two and in the urine of one of these cases. In the remaining two cases the bacteriological proof of the identity of the bacilli found microscopically in the mesenteric glands (and in the spleen also of one of them) is not complete, but that they were typhoid bacilli seems possible.

⁸ Transactions of the British Institute of Preventive Medicine, First Series, 1897.

⁹ Loc. cit.

¹⁰ Beiträge g. path. Anat. u. Allgem. Path., Bd. xxii, 1897.

¹¹ Zeitschr. f. Heilkunde, Bd. xviii, 1897.

The authors regard these cases as "typhoid septiemia," and emphasize the necessity of bacteriological examinations at autopsies on cases which have given a positive Widal reaction during life, but in which the anatomical signs of typhoid fever are lacking. They consider that certain post-mortem observations which have seemed to discredit the clinical significance of the Widal reaction are not convincing, because they were not supplemented by bacteriological examination.

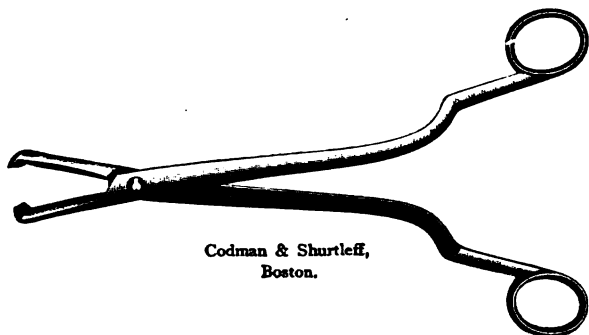
Simon Flexner and N. McL. Harris have also recently reported a case of typhoid infection without intestinal lesions. In this case typhoid bacilli were cultivated from the lungs, liver and spleen.

New Instruments.

A UTERINE CUTTING FORCEPS.¹

BY W. L. BURRAGE, M.D.

THE instrument figured in the accompanying cut is intended for the removal of polypi situated at the fundus uteri, and for smoothing rough surfaces in the same situation left after the morcellation of submucous fibroids. It was designed to fill a place that is not taken by the long uterine scissors, the vulsellum forceps, the placenta forceps, the long hemostatic forceps with serrated blades or the Emmet curette for-



Codman & Shurtleff,
Boston.

ceps or the curette. It is a powerful forceps made after the fashion of the long uterine scissors and the post-nasal cutting forceps, having the cutting blades at the end only. These blades are three-eighths of an inch wide, their corners being ground off so as to protect the guiding finger of the operator. They will cut only on a convex surface and therefore there is no danger of perforating the uterus. A fenestrum in each blade behind the cutting surface prevents the forceps from becoming clogged by the pieces of tissue as they are removed. The extreme length of the instrument is nine and a quarter inches, and there is a French lock two inches from the cutting edges. It is slender enough to work well through a moderately dilated cervix and yet it will cut cleanly through the toughest fibrous tissue.

In operation it bites off the tissue, leaving a smooth surface behind; and, by virtue of the pinching that it gives the tissues, it lessens the tendency to hemorrhage. Used as a vulsellum in larger growths, especially the more friable ones, the blades being broad, sink into the tissue and do not tear through as do the teeth of the ordinary vulsellum.

¹ Shown before the Obstetrical Society of Boston, November 16, 1897.

I have used the forceps on several cases and its successful work has more than equalled my expectations.

The instrument was made for me by Codman & Shurtleff, of Boston.

Reports of Societies.

THE OBSTETRICAL SOCIETY OF BOSTON.

CHARLES W. TOWNSEND, M.D., SECRETARY.

REGULAR Meeting, November 16, 1897.

DR. G. W. MOOREHOUSE read, by invitation, a paper entitled

BITS OF MEDICAL FOLK-LORE.¹

DR. C. W. TOWNSEND referred to a case where the husband of a colored woman at the Boston Lying-in Hospital demanded from the house-officer the caul with which the child had been born. She refused to believe that such a valuable safeguard against drowning had not been saved.

DR. W. L. BURRAGE showed

A UTERINE CUTTING FORCEPS FOR ENUCLEATION OF FIBROIDS.²

and demonstrated its use.

DR. M. H. RICHARDSON reported

A CASE OF VESICO-VAGINAL FISTULA.

DR. F. B. HARRINGTON said that there were two important points in the operation, one to denude enough, another to use silver wire.

DR. A. WORCESTER said that silver wire was justified by the germicidal power of the silver salts formed.

DR. C. W. TOWNSEND reported orally

A FATAL CASE OF HEMORRHAGE UNDER THE SCALP IN A NEW-BORN INFANT,

which occurred during his service last September at the Boston Lying-in Hospital. After a short first stage of four and a half hours and a second stage of two hours and fifteen minutes the child was delivered with forceps. Lack of progress in the second stage and what was thought to be a large caput were the only noticeable things. Forceps extraction was rather difficult, but the application of the blades over the ears was good and there was no apparent damage done. The supposed caput instead of decreasing, became larger and was found to be soft and fluctuating, and was due evidently to an effusion of blood beneath the scalp. On the third day it was still larger, extending over the whole cranium. The infant was pale with a subnormal temperature of 96.8° in the rectum. On the seventh day the tumor was still increasing, extending well forward on the frontal bones and laterally down the sides of the skull. Death ensued on the tenth day.

The autopsy showed the body to be much blanched. A firm blood-clot extended under the scalp and above the periosteum (thus differing from a cephalhematoma) over the entire cranium, three-quarters of an inch thick in places. This clot reached from the foramen magnum behind to the middle of the frontal bones anteriorly and down to the ears on both sides. The infant had evidently bled to death under its scalp.

¹ See page 201 of the Journal.

² See page 207 of the Journal.

There were no hemorrhages elsewhere. At the autopsy it was impossible to find the source of the hemorrhage, in fact there seemed to be a number of points of origin.

ASSOCIATION OF AMERICAN ANATOMISTS.

UPON the invitation of Cornell University, the Association met at Ithaca, N. Y., December 28-30, 1897. Morning and afternoon sessions were held on each of the three days excepting Wednesday, when all the affiliated societies met in the afternoon with the American Society of Naturalists. Notwithstanding the small attendance, the sessions were fully occupied with reports, papers and discussions, and several papers were read by title for lack of time.

After a brief introductory by the President, Dr. Frank Baker, Dr. B. G. Wilder read an obituary notice of Dr. Harrison Allen, one of the founders and presidents of the Association.

The report of the Secretary-Treasurer, Dr. Lamb, showed that there were 105 active and four honorary members. Dr. Allen and Dr. Wm. Laurence Dana (of Portland, Me.) had died, and Dr. P. J. McCourt, of New York City, had resigned. Beginning with the present year the annual dues are three dollars.

The circular and blanks in reference to the anatomical peculiarities of the negro race were ordered to be modified and copies sent out for report of cases.

The Association adopted the report of the majority of the Committee on Anatomical Nomenclature, and ordered it to be published and distributed as soon as practicable, accompanied by the objections of the minority of the committee, and comments thereon by the secretary of the committee. Of the several terms recommended, more than 100 were identical with those adopted in 1895 by the Anatomische Gesellschaft.

The following papers were read and discussed; they were illustrated by specimens, photographs and diagrams:

Dr. P. A. Fish, Ithaca, N. Y.: "A Fluid for the Retention of the Natural Colors of Anatomical Specimens," and "Mummification of Small Anatomical Specimens."

Dr. George S. Huntington, New York City: "Comparative Anatomy and Embryology as Aids to the Teaching of Human Anatomy in the Medical Course."

Dr. Wilder: "An Adult and Healthy Living Cat, Lacking the Left Arm, excepting the Scapula, and Having the Heart apparently at the Epigastrium."

Dr. Woods Hutchinson, Buffalo, N. Y.: "Relative Diameters of the Human Thorax."

Dr. D. S. Lamb, Washington, D. C.: "Pre Columbian Syphilis."

Mr. Charles H. Ward, Rochester, N. Y.: "A Cranio-mandibular Index."

Prof. Howard Ayers, University of Missouri: "The Membrana Basilaris, Membrana Tectoria, and Nerve Endings in the Human Ear." Read by Dr. Hopkins.

Dr. Wilder: "Certain Resemblances and Peculiarities of the Human Brain."

Dr. B. B. Stroud, Ithaca, N. Y.: "The Ape Cerebellum."

Dr. Fish: "The *Basis* of the Fur-Seal, *Callorhinus ursinus*."

Dr. Hunt: "Arterial Bronchial System of Man"

Dr. J. A. Blake, New York City: "The Relation of the Bronchi to the Thoracic Wall."

Dr. Thomas Dwight, Boston, Mass.: "The Distribution of the Superior Mesenteric Artery." Read by Dr. Lamb.

Dr. D. W. Montgomery, University of California, San Francisco: "Sebaceous Glands in the Mucous Membrane of the Mouth." Read by Dr. Lamb.

Dr. Stroud: "Notes on the Appendix."

Prof. S. H. Gage, Ithaca, N. Y.: "On the Relation of the Ureters in the Cat to the Great Veins; with Variations."

Dr. Wilder: "A Number of Specimens of Either Unusual or Specially Instructive Character."

Mr. H. A. Surface, Fellow in Cornell University: "Notes on the Fish Fauna of Cayuga Lake."

The following papers were read by title:

Prof. George A. Dorsey, Chicago: "Description of Two Koutenay Skeletons," and "Two Examples of Unusual Ossification of the First Costal Cartilages."

Dr. E. R. Hodge, Washington, D. C.: "Relation of Sex to the Size of the Articular Surfaces of the Long Bones."

Dr. J. T. Duncan, Toronto, Can.: "Anus Vulvalis."

Dr. Woods Hutchinson: "A Skin Heart?"

The following officers were elected for the ensuing term: Dr. B. G. Wilder, Ithaca, N. Y., President; Dr. George A. Piersol, Philadelphia, First Vice-President; Dr. William Keiller, Galveston, Texas, Second Vice-President; Dr. D. S. Lamb, Washington, D. C., Secretary and Treasurer.

Dr. F. J. Brockway, of New York City, Delegate, and Dr. R. W. Shufeldt, of Washington, Alternate, to Executive Committee of Congress of American Physicians and Surgeons.

Dr. F. J. Shepherd, of Montreal, Can., Member of the Executive Committee of the Association, in place of Dr. Huntington, term expired.

The following candidates were elected active members of the Association:

1. Frank Irving Brown, A.M., M.D., of South Portland, Me., Instructor of Anatomy, Portland School for Medical Instruction.

2. George Amos Dorsey, A.B., Ph.D., Acting Curator of Anthropology, Field Columbian Museum, Chicago, Ill.

3. Grant Sherman Hopkins, D.Sc., Assistant Professor of Anatomy, Cornell University.

4. G. Carl Huber, M.D., Assistant Professor of Histology, University of Michigan.

5. A. T. Kerr, M.D., Acting Professor of Anatomy, Medical Department, University of Buffalo.

6. Alfred King, A.B., M.D., Demonstrator of Anatomy, Bowdoin College.

7. Edward James McDonough, A.B., M.D., Demonstrator of Histology, Bowdoin College.

8. John Anderson Springle, M.D., C.M., Lecturer on Anatomy, McGill University.

9. Robert J. Terry, M.D., Demonstrator of Anatomy, Missouri Medical College, St. Louis.

10. Prof. Albert H. Tuttle, D.Sc., University of Virginia.

The following eminent anatomists of the Old World were elected honorary members:

Dr. Mathias Duval, Paris; Dr. Carl Gegenbaur, Heidelberg; Dr. Wilhelm His, Leipzig; Dr. Albert von Kölliker, Würzburg; Dr. Alexander Macalister, Cambridge; Dr. L. Ranvier, Paris.

It is understood that the next meeting will be held in New York City, in the Christmas holidays, in conjunction with the Society of Naturalists and other affiliated Societies.

Recent Literature.

The American Year-Book of Medicine and Surgery.

Being a Yearly Digest of Scientific Progress and Authoritative Opinion in All Branches of Medicine and Surgery, drawn from Journals, Monographs and Text-Books of the Leading American and Foreign Authors and Investigators. Collected and arranged, with critical editorial comments, by eminent American specialists and teachers. Under the general editorial charge of GEORGE M. GOULD, M.D. Philadelphia: W. B. Saunders. 1898.

The American Year-Book of Medicine and Surgery for 1898 is welcome! It is, as hitherto, a royal octavo, of the same size as the American Text-Book Series from the same publishers, of about 1200 pages.

What we have said of its predecessors we repeat of this issue with no less emphasis. The aim of the editor has been well carried out, and the Year-Book should find a place on the shelves of medical practitioners.

American Text-Book of Applied Therapeutics.

For the use of Practitioners and Students. Edited by J. C. WILSON, M.D., etc., assisted by AUGUSTUS A. ESHNER, M.D., etc. Philadelphia: W. B. Saunders. 1897.

In the preparation of this royal octavo of 1326 pages the editors have enjoyed the co-operation of a large number of widely known and distinguished collaborators—all Americans with exception of Laveran, of Paris, who contributed the chapter on Malarial Fever, and Beavan Rake, of Trinidad, who wrote the chapter on Leprosy. The object of the editors has been to indicate the course of treatment to be applied at the bedside, to make the book clinical and practical.

The important article on Typhoid Fever is by the editor, Dr. J. C. Wilson, who warmly advocates Brand's cold-bath treatment. The scope of the work is a broad one and includes chapters on diseases of the brain and mind, on diseases of the skin and its appendages, and on pregnancy and its disorders; this last chapter is by the late Dr. Theophilus Parvin.

This text-book of Applied Therapeutics can be recommended to the practitioner.

A Text-book on Mental Diseases.

For the Use of Students and Practitioners of Medicine. By THEODORE H. KELLOGG, A.M., M.D. Pp. 775. Wood & Co. 1897.

This is the first work on mental diseases by an American author which can properly be called a systematic treatise, and, with the exception of Stearns's Clinical Lectures, it is the only text-book on the subject from the pen of an asylum superintendent in this country.

While its bulk may appall the medical student in whose curriculum the study of disorders of the supreme organ of the body is a minor requirement, he—as well as the general physician—may go to it confident of finding the information he seeks on any

practical point whatever in the domain of mental medicine, clearly and fully given. For the practised alienist it will prove a complete "up-to-date" book of reference; and while he will discover few new truths or original views, he is sure to be pleased with the author's painstaking thoroughness and sensible opinions in every direction.

The classification is simple and of the pathologico-symptomatic variety; and, unlike many others, it is not likely to confuse the student. On the ground that "words . . . should not be changed without good reason when they have once been accepted as technical labels in special branches of science," few new terms or varieties of diseases are introduced—a welcome novelty in a new work on insanity. Among the few that of "abulic insanity" as a separate form seems a most suitable classification, properly designating and grouping, as it does all the myriad-named "phobias," obsessions and impulses of the order of *folie du doute*, etc., under an appropriate head.

In the chapter on statistics, several interesting points are brought out. The author's estimate of the average results to be anticipated in mental disorders is based upon the statistics of a large experience in private practice as well as from hospital records. In consequence, he finds, as might be expected, a considerably larger proportion of permanent recoveries than merely hospital statistics—the only ones heretofore available—have led us to believe possible. Also, the average age at which first attacks occur is shown by the use of a vast number of cases to be rather lower than appears from the usual computations from small numbers of patients. The invariable obstacle to investigations on the tendency to insanity at certain ages we have never seen mentioned before. We refer to the fact that we must first compare the number of cases occurring at those ages with the mean of the living population of like age at the time of the occurrence of the mental disease, and such complete information is not to be had.

The treatment of insanity is a prominent feature of the work; and there is an abundance of information and judicious advice on all the points of care and treatment of all kinds of patients and all forms of the disease, but we feel quite sure that few psychiatrists of practical experience will be found to have the same confidence as does the author in the real value of purely medicinal treatment.

Taken as a whole, this volume does great credit to its author and the profession in this country as a scientific, advanced and practical exposition of the present state of mental medicine in all its branches.

The Wound Dresser.

A Series of Letters written from the Hospital in Washington during the War of the Rebellion. By WALT WHITMAN. Edited by RICHARD M. BUCKE, M.D. Boston: Small, Maynard & Co. 1898.

It was the fortune of the "good gray poet" throughout three years of the Rebellion to minister to the daily wants of many of the thousands of sick and wounded soldiers in the Washington hospitals. With a kind and sympathetic soul, Whitman took delight in visiting the wards of the hospitals, and lending a helping hand till he himself broke down with illness. He says in one of his letters: "I believe that even the moving around among the men, or through the ward, of a hearty, healthy, clean, strong, generous-souled per-

son, man or woman, full of humanity and love, sending out invisible, constant currents thereof, does immense good to the sick and wounded."

The first three chapters are entitled "The Great Army of the Wounded," "Life among Fifty Thousand Soldiers," and "Hospital Visits"; and the book closes with a series of letters to his family friends, mostly presenting pictures of hospital life.

The book will be welcomed, not only by every surgeon, hospital steward and nurse who served in those dark days of strife, but also by the general reader.

Traumatic Injuries of the Brain and its Membranes, with a Special Study of Pistol-Shot Wounds of the Head in their Medico-Legal and Surgical Relations. By CHARLES PHELPS, M.D., Surgeon to Bellevue and St. Vincent Hospitals. Pp. 582, and 49 illustrations. New York: D. Appleton & Co. 1897.

One finds this an attractive volume. It is well arranged, with clear type and excellent illustrations. It has been written to supply a concise, systematic description of brain lesions due to violence. It is a book of value to surgeons; also to general practitioners, whose experience is less extended, and who occasionally have urgent need of knowledge derived from wide clinical observation.

The book is written from the knowledge obtained from the actual clinical observation of the author, who has studied his records of five hundred consecutive cases of recent occurrence with this end in view. They are in many instances complete in clinical and necroscopic details. They give a comprehensive history of intracranial traumatism, except as relates to secondary pyogenic infection of the brain substance. The description of cerebral abscess is supplied from Macewen's excellent work.¹ The book is so arranged that the condensed histories of 300 of the author's cases are placed separately in an appendix. This is an excellent plan, since it preserves the continuity of the text and places the original material at the disposal of independent observers in such a manner that it can be utilized.

The lesions resulting from pistol-shot wounds are separately described; and this part of the work has been supplemented by a series of experiments on the cadaver to obtain data to determine, for legal purposes, how far the appearances presented by the patient indicate the conditions under which the injury was inflicted. The writer thinks he has better defined not only the positive value, but also the limitation of the medical evidence in these cases, than has been heretofore possible; that one can more precisely estimate the true worth of expert testimony in these cases.

The book represents the results of extensive investigation, and will repay a careful perusal. It contains much which is of interest and value. Its statistical tables are extremely interesting as well as instructive.

Atlas and Essentials of Gynecology. By DR. OSCAR SCHAEFFER. Pp. 288, with 173 colored plates and 54 woodcuts. New York: William Wood & Co. 1897.

This little book, one of the series of Wood's Medical Hand Atlases, consists essentially of a series of small but very beautiful plates, and is excellent in its way. The text amounts to but little more than an explanation of the illustrations.

¹ History of Pyogenic Inflammation of the Brain and Spinal Cord.

THE BOSTON Medical and Surgical Journal.

THURSDAY, MARCH 3, 1898.

A Journal of Medicine, Surgery and Allied Sciences, published at Boston, weekly, by the undersigned.

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THE LAST PUBLIC HEALTH SUPPLEMENT OF THE LOCAL GOVERNMENT BOARD.

THE Public Health Supplement of the Twenty-sixth Report of the Local Government Board of England follows closely after that of the twenty-fifth, and contains many important medical papers, of which we can summarize briefly only those which are of the highest general interest to medical men.

Under the topic "Vaccination," the Board has revised its circular order of 1887 so as to sanction the use of calf-lymph (which English physicians have been slow in endorsing) upon an equal footing with humanized lymph. This may be taken as one of the results of the Parliamentary investigation upon vaccination, which has dragged its "slow length along" for the past eight or nine years. Sir Richard Thorne and Dr. Copeman also present a joint report upon the methods adopted in Continental cities in the preparation, storage and distribution of calf-lymph, especially of that which is glycerinated, to which we refer more fully under another head.

There are two instructive reports upon the prevalence of typhoid fever in the two small communities of Bicester and Chichester, the former being apparently due to polluted water-supplies, and this had occurred after the town authorities had already been warned in 1890 that "a safe water-supply for the district is essential." The latter epidemic occurred in a town where the disease appeared to be due to the serious pollution of the underlying soil by cesspools, with which, to use the words of Dr. Bulstrode, "the whole gravel upon which the town is built is riddled." It was on this account that scientific investigations were then instituted by the Board with reference to the behavior of typhoid-fever bacilli in soil of various kinds, both infected and virgin soil being made the subject of experiment. The result of these investigations has been mainly to show that the bacillus multiplies rapidly in polluted soil, but very soon dies out in virgin soil.

Another valuable paper is that of Dr. Cantley's upon the behavior of the typhoid bacillus in milk, which constitutes a decided addition to the knowledge of the subject; but the conclusions arrived at are not of so decisive a character as those which relate to the subject of soil-pollution.

Other papers follow upon the microbes of vaccinia and variola and that of bubonic plague, cultures of the latter having been obtained from a native of India who died of the disease soon after arrival in London.

The Board also publishes an amendment of its memorandum of 1891 upon the "circumstances under which the closing of public elementary schools, or the exclusion therefrom of particular children may be required in order to prevent the spread of the disease." The occasion which gave rise to the change was the occurrence of certain epidemics of diphtheria, which were very similar in character to those which have caused considerable friction in Massachusetts in recent years between the educational and the sanitary authorities of towns.

It appears that the Board, in a recent letter of December 24, 1897, has stated its intention to investigate the circumstances attendant upon the recent serious epidemic at Maidstone.

ENTEROPTOSIS.

FOR the diagnosis of gastropptosis Langerhans¹ introduces into the stomach a stomach tube with a soft-rubber bag or condom tied over the end, and then inflates the bag with a measured amount of air by means of a syringe of known capacity. In cases of pure gastropptosis distention first appears low down, sometimes at the level of the navel in the middle line, and sometimes a little to the left. This tumor soon appears as a transversely placed swelling, which extends from left to right at the level of the umbilicus, and from the left extremity of which a limb extends directly upward under the lower border of the thorax.

The most important etiological factor of enteroptosis is a weakening of the muscular tone of the abdominal wall, the muscles of which, in some manner not yet fully understood, maintain the intra-abdominal organs in their normal positions. This class comprises the post-puerperal enteroptoses of Landau. In contrast to this is a second form, comprising those cases associated with chlorosis—due either to the fact that the anemic supporting ligaments of the viscera stretch under their weight, that the slowly moving contents in the anemic intestinal canal drag unduly upon the mesentery, or to other unknown causes—the enteroptoses of Meinert. Langerhans believes also that "nervous dyspepsia" is a cause of gastropptosis, and recognizes a hereditary predisposition or inherited tendency to enteroptosis. He does not believe that the wearing of corsets possesses the importance as a cause of this disease which Meinert ascribed to it.

¹ Archiv. für Verdauungskrankheiten, Bd. III, Hft. 3.

A moderate degree of enteroptosis, when it is consecutive upon frequent child-bearing, is physiological, and productive of no symptoms. Cases of "Meinert's enteroptosis" seldom fail to produce symptoms. The most frequent symptoms are those of aggravated dyspepsia, pain and demonstrable abnormalities of secretory and motor functions. The descent of the abdominal organs changes the mechanical relations so that lasting injuries result, sometimes due to pressure upon the unprotected kidneys, sometimes to increased demands upon the propulsive muscles of the stomach, always to stretching of the mesentery. By the cumulative effect of these numerous and continuous irritations, even though each in itself is comparatively slight, the central nervous system becomes exhausted, and according to individual predisposition, neurasthenia or hysteria with especial prominence of abdominal symptoms is the result. Enteroptosis is the commonest cause of intestinal neurasthenia and hysteria.

The application of a bandage is of advantage only in the post-puerperal type of cases; abdominal massage and rubbing with alcohol should also be ordered. Operation or mechanical measures for fixation of the kidneys have been found of advantage only in the extremely rare cases in which other organs are slightly or not at all involved. Thure Brandt's vibration over the kidneys, and faradization of the abdominal wall have proved of only slight advantage. Most important of all therapeutic measures are gymnastic movements, calculated to strengthen the abdominal muscles, such as bending or twisting the trunk in the sitting, lying and standing positions. Of the efficacy of yeast (Günzberg) Langerhans has not been convinced. Sesamol, as recommended by Van Noorden, has been almost universally well borne and under its administration increase in weight and improvement in the general condition have been noted. The condition of the nervous system demands most careful observation and treatment.

MEDICAL NOTES.

AN OPERATION ON SARAH BERNHARDT. — It is reported that Dr. Samuel Pozzi, of Paris, operated on February 16th upon Sarah Bernhardt, the French actress, for the removal of an intra-ligamentous cyst.

PROFESSOR VON ESMARCH, it is reported, has announced his intention to resign the chair of surgery at the University of Kiel at the end of the present semester. He is now over seventy-five years old, and was appointed professor of surgery at Kiel in 1857. He is also a surgeon-general in the German army.

BOSTON AND NEW ENGLAND.

ACUTE INFECTIOUS DISEASES IN BOSTON. — For the the week ending at noon, March 2, 1898, there were reported to the Board of Health, of Boston, the following numbers of cases of acute infectious disease: diphtheria 26, scarlet fever 20, measles 42, typhoid fever 2.

THE BOARD OF HEALTH CONDEMNS BUILDINGS IN BOSTON.—The Boston Board of Health is at present active in condemning buildings in the crowded districts which are in unfit sanitary condition for safe occupation.

AN EPIDEMIC OF CEREBRO-SPINAL MENINGITIS.—There is an epidemic of cerebro-spinal meningitis in the small town of Uxbridge, in Worcester County, Mass.

NEW YORK.

NEW YORK COUNTY MEDICAL ASSOCIATION.—At a meeting of the New York County Medical Association held February 21st, the President-elect, Dr. George T. Harrison, delivered his inaugural address. In his valedictory remarks the retiring President, Dr. Janvrin, spoke in favor of a union of the Association with the Medical Society of the County of New York, and in the executive session later a resolution was adopted authorizing the President to appoint a committee of seven to confer with the authorities of the County Society as to the practicability of the proposed union. It is likely that this movement will meet with determined opposition from a large number of the members of the Association, for the reason that the County Association, like the State Association, was organized (in 1884) on account of the repudiation of the code of ethics of the American Medical Association by the State and County Medical Societies, and that the County Association is the only body in the County, and the State Association the only body in the State entitled (by reason of their adherence to the code of ethics) to representation in the American Medical Association.

DR. CHARLES B. KELSEY.—Dr. Charles B. Kelsey, a well-known specialist in rectal surgery, who had held a professorship in the Faculty of the Post-Graduate Medical School and Hospital since 1890, was removed by a vote of the Board of Directors of the Institution at the beginning of the present year. The reason for this action was that Dr. Kelsey had notified the Corporation Counsel of the city that the annual report of the hospital, which receives from the public funds 38 cents a day for each infant cared for by it without charge, was misleading, in that it claimed ten thousand more days' free care for infants than it was in reality entitled to. He also expressed opposition to the expenditure of certain endowment funds to meet current expenses of the hospital. Accordingly, charges of improper and disloyal conduct were preferred against him. After his removal, Dr. Kelsey instituted proceedings in the Supreme Court for reinstatement, claiming that he had been dismissed without a hearing, to which he was legally entitled, and that such a removal could be made only by a three-fourths vote of the entire Board. On February 21st Judge Pryor, before whom the case was tried, rendered his decision in Dr. Kelsey's favor, and ordered the Board of Directors to reinstate him in his professorship.

HYDROPHOBIA CONVEYED THROUGH ABRASIONS. A young girl, seventeen years of age, recently died at

the Roosevelt Hospital of hydrophobia, which was contracted in an unusual way. Her home was at Congers, Rockland County, where the family owned three fine Newfoundland dogs. One by one they sickened and died of rabies, but as the nature of the trouble was entirely unsuspected she frequently allowed them to lick her hands. On the latter there were abrasions at the time, and as it was positively ascertained that she was never bitten, there would seem to be no question that the virus was introduced through these abrasions from the tongues of the animals.

DEATH OF A PEARY ESQUIMAUX.—Kushan, one of the six Esquimaux brought here from Greenland last summer by Lieutenant Peary, died at Bellevue Hospital on February 19th, of pneumonia. He left a small son who is with the rest of the party at a suburban residence.

A NEW RECREATION PIER.—The Legislature has provided for the construction of a new free recreation pier, to be located on the Hudson, at the foot of 96th Street. It will be of the same character as those opened last year on the East River, which proved a source of so much benefit and pleasure to the poor.

BEQUESTS BY DR. SEGUIN.—The will of Dr. E. C. Seguin bequeaths to the New York Academy of Medicine an oil painting of his father, Dr. Edouard O. Seguin, an autograph letter of Pope Pius IX, a bronze medallion of Charcot given by him to Dr. Seguin, and a portion of his library. To the pathological laboratory of the Alumni Association of the College of Physicians and Surgeons, he leaves his collection of instruments and appliances for the study of the nervous system, his anatomical and pathological preparations and specimens, and his neurological library.

DEATH OF DR. CONANT SAWYER.—Dr. Conant Sawyer, physician of Auburn prison, died February 21st, of pneumonia, after a week's illness. He was formerly a practitioner at Ausable Forks, and had occupied his position at Auburn for ten years. During his incumbency he performed a large number of important surgical operations and raised the medical service of the institution to a high degree of efficiency.

Miscellaneous.

THE INDUCTION OF PREMATURE LABOR BY MEANS OF GLYCERIN.

DR. HEINRICH SAFT, assistant physician at the Provincial Lying-in-Hospital in Breslau, has published, in the *Deutsche Medicinische Wochenschrift* of January 20th an account of a method which he has devised for the induction of premature labor by means of glycerin.

The procedures commonly employed for this purpose, such as irrigations of hot water, introduction of bougies, etc., usually require some days or even a week to produce the effect, and glycerin is the most efficient substance at present known. Glycerin acts by withdrawing water from the animal tissues and in this way irritat-

ing the uterine ganglia and nerves so that muscular contractions are produced. Its application is not free from danger, as it has been found to cause hemoglobinuria, destruction of the red blood-corpuscles, shivering fits and spasmodic dyspnea. For the purpose of obviating these dangers, Theilhaber used rods coated with a mixture of glycerin, gelatin and tricesol. Dr. R. A. Simpson injected three ounces of glycerin into the undilated os uteri of a primipara suffering from eclampsia and subsequently packed the cervix and vagina with plugs soaked with glycerin; but labor did not ensue, and another injection of glycerin had to be given.

The dilemma is that small quantities of glycerin are useless, and large quantities are dangerous. Dr. Saft therefore endeavored to devise a method by which a large quantity of glycerin might be introduced into the uterus without more than a very small proportion of it being absorbed. The method was suggested by the procedure of passing a catheter covered with an empty india-rubber bag between the uterus and the membranes. The bag was fastened to the catheter by thread tied round its mouth, and when it was in position it was filled through the catheter with from 400 to 500 c. c. (from 14 oz. to 18 oz.) of a solution of lysol. It occurred to Dr. Saft that if glycerin were substituted for the lysol solution and animal membrane for the india-rubber bag, then the glycerin would be able to exert its power of withdrawing water from the tissues without much of it being absorbed. For the animal membrane he used the swimming bladders of fish which as prepared for the market possess most of the requisite qualities; and having selected such as were capable of holding water he succeeded to his satisfaction in inducing labor without any ill-effects to the patients. Diffusion takes place through the swimming bladder, the glycerin withdrawing water from the uterus and fetal membranes. The quantity of glycerin which diffuses outwards through the membrane is too small to be productive of injury.

The swimming bladders selected for this purpose must hold water; most of those which are sold will not do so, and all such must be rejected. They are then freed from fat by treatment with ether and are afterwards sterilized with an alcoholic solution of corrosive sublimate, the process resembling the preparation of catgut by Schimmelbusch's method. When the bladder is drawn over the catheter, about an inch is left between the bottom of it and the tip of the catheter; the two are then tied together with silk. When the instrument is inserted between the uterus and the fetal membranes about 100 c. c. ($3\frac{1}{2}$ oz.) of glycerin are injected through the catheter, the lower end of which is then closed by means of a piece of india-rubber tube. The bladder must not be pushed high up into the uterus, but must lie directly over the internal os. Finally, the vagina is packed with iodoform gauze, which prevents the catheter from slipping out.

No ill-effects to either mother or child were observed. Of seven patients treated in this way four had injections of from 40 to 60 c. c. (from $1\frac{1}{2}$ oz. to 2 oz.) of glycerin and the average duration of labor was about 108 hours; the other three had injections of 100 c. c. ($3\frac{1}{2}$ oz.) of glycerin and the average duration of labor was about 52 hours.

Strong solution of sodium sulphate is another of

the fluids which tend to absorb water by osmosis, and he proposes to make trial of it in the way above described in order to ascertain if it has the same effect on the uterus as glycerin has.

There would seem to be a probability that a mixture of sodium-sulphate solution and glycerin might be employed with advantage, thus combining two drugs which possess a strong affinity for water, as is done in the enema of glycerin and sodium-sulphate solution which is so much used at present for the purpose of moving the bowels in cases of threatened septic peritonitis.

THE VITALITY OF THE PLAGUE BACILLUS.

In a report presented to the Surgeon-General of the Bombay Presidency, Mr. E. H. Hankin records certain investigations into the vitality of the plague microbe in the soil, in urine, in cow dung, in the chief grain exports from Bombay, and into the action of disinfectants on it. Mr. Hankin found the isolation of the plague microbe, when mixed with the microbes commonly present in dirt, to be almost impossible, and he doubts Yersin's statement that the plague microbe can be found by existing methods in the soil of infected localities.

An attempt was made to obtain some idea of its probable behavior in the outside world by testing the duration of its life in various substances that might possibly act as its nidus. This was done by adding the plague microbe to the substances to be tested after they had been sterilized. In acid urine it was found that the microbe could remain alive for twenty-four hours. In acid human feces it appears to die out sooner. Similar results were obtained with acid cow dung, but in alkaline cow dung the plague microbe appeared to be able to keep alive for four days. Grain which has fermented usually acquires an acid reaction, and it was found that the plague microbe died out within twenty-four hours when placed in sterilized liquid obtained from putrid grain. Mr. Hankin was unable to confirm the statement of Wilm and Abel, that the plague bacillus could remain alive in sterilized water for many days or even weeks. Cultures of the plague microbe added to different grains usually exported from Bombay perished within thirteen days.

Mr. Hankin confirmed the views of Kitasato and Abel that the plague microbe is not particularly sensitive to carbolic acid. Phenyl, a distillation product containing various phenols and cresols, appeared to be more active; while izar was still more active, for in a strength of 1 to 500 it appeared to kill the microbe in five minutes. But as phenyl and izar are insoluble in water, and merely form an emulsion, it is questionable whether their activity would be as great under the conditions that exist in nature. This objection cannot be raised against lysol, which seems to be equally efficacious. Naphthalin had no disinfectant action. Formic acid 1 in 100, acetic acid 1 in 142, lactic acid 1 in 333, nitric acid 1 in 333, hydrochloric acid 1 in 500, sulphuric acid 1 in 1,429 destroyed the plague microbe in five minutes, while permanganate of potash in a strength of 1 in 10,000 destroyed the microbe. On the whole, however, Mr. Hankin suggests that the disinfectants to be used for infected buildings should be sulphuric acid 1 in 250, and a solution of corrosive sublimate 1 in 1,000 to which hydrochloric acid in the

proportion of 2 in 1,000 has been added. We doubt very much whether the strength of the corrosive sublimate would effect the object in view, for we have known of corrosive sublimate double the strength proposed being ineffective in sterilizing soils. — *British Medical Journal*.

TRAUMATIC PERITONITIS DUE TO CONTUSSIONS OF THE ABDOMEN WITHOUT INJURY TO THE VISCERA.

FROM one of his own and two cases in the hands of others Delore¹ comes to the conclusion that traumatic peritonitis without injury to the viscera, though rare, occasionally occurs, even when the term injury in the case of the intestine be understood to mean not only rupture, but also a contusion of the intestine. The occurrence of peritonitis without perforation, but in the presence of ecchymosis or necrosis of the intestinal wall, may be explained by infection of the peritoneum through the contused intestinal tissue. The mechanism of peritoneal infection without injury to the wall of the intestine is as yet unknown, but the possibility of its occurrence must be admitted.

Correspondence.

BERLIN LETTER.

ETIOLOGY IN BLOOD DISEASES. — PSEUDO-PERNICIOUS ANEMIA IN WOMEN OF THE BETTER CLASS WHO RIDE AND WRITE AND DANCE AND STUDY AND SPORT. — BLOOD CHANGES AT ALTITUDES DENIED. — PASTEUR INSTITUTE FOR BERLIN. — PROFESSOR VON ESMARCH'S RESIGNATION AND THE PASSING OF THE GREAT GERMAN MEDICAL PROFESSORS.

BERLIN, February 10, 1898.

MR. EDITOR: — Professor Grawitz, who is quite well known as an authority on blood conditions, and who was selected as one of the referents for certain of these conditions at the International Congress at Moscow last summer, is delivering a very interesting series of lectures on blood pathology here. The discussion of the present status of the question of essential anemia, that is, a primary anemia without a cause outside the blood itself, shows that the idea of disease of the blood as of a fluid independent tissue has given way to the much more rational one, that all anemias are secondary to some organic change, which makes itself felt alone perhaps in the altered blood condition. Progressive pernicious anemia is only a form of disease having a cause as yet unknown, and a course inevitably fatally progressive.

One of the things always looked for here in seemingly inexplicable anemias is the presence of intestinal parasites. Anchylostomiasis, that is, the presence of the *anchylostomum duodenale* in the *jejunum* (*sic*), is especially carefully looked for. Some cases were found among workers in a brickyard near Berlin not long ago by Grawitz; and as the disease is readily communicable, if the eggs of the parasite find their way into food or drinking-water, anemias in workers in clay are now always suspected. All of the other intestinal parasites have been known, however, to produce intractable anemia; syphilis, too, is gradually coming to be looked upon as an important etiological factor in progressive pernicious anemia. But then there are so many pathological conditions attributed to syphilis!

A very interesting form of pernicious anemia is that described as occurring among women of the better classes, as a consequence of over-exertion, be it mental, physical or emotional. The well-known state of more or less unstable equilibrium of the blood-making organs in women, which

enables them to meet the varying demands of the pregnant and puerperal conditions, besides the not insignificant strain of monthly losses, leaves them especially liable to profound pathological alterations, if in more or less delicate constitutions additional burdens are put on them. Women who take upon themselves to imitate men in their ways of living, especially wives who make it a point to occupy themselves as their husbands do; who take up serious intellectual work, and devote themselves to their social duties, and then besides indulge in severe exercise — bicycle tours, mountain climbing, etc. — supposed to be recreation, and which actually are so for the more rugged masculine constitution, are sufferers in this way. These women are liable to progressive anemic conditions, at least here in Germany, having many points of resemblance to so-called pernicious anemia. Only a course of the most rigid rest-cure combined with plenteous nutrition (over-feeding) stops the disheartening progression of the affection. Where the same condition develops a second time, as the result of the same etiological factors, despite medical warning, the reaction of the blood-making organs is slow and often incomplete. A persistent anemia remains, which very easily takes on the quality of perniciousness, or sadly diminishes vital resistance to fatal intercurrent disease.

The problem of the increase of red blood-cells at altitudes, which attracted so much attention some years ago, naturally aroused a great deal of talk here. After a number of warm discussions at the Berlin Physiological Society, it was practically agreed that the increase of red blood-cells was apparent, not real. The fact of the decrease in number occurring immediately after descent, without any trace being found in excretions of the immense number of corpuscles, which must somehow be destroyed in the organism, if the decrease were a real one, was the consideration which moved most of the authorities not to credit the conclusions that seemed to flow inevitably from the blood-counts recorded.

It is believed now that the difference in pressure between higher and lower levels causes a different distribution of the red blood-cells in the organism, and that as a consequence more of them are found in the superficial cutaneous vessels than before. This theory has led to some very suggestive thoughts as to the merely relative accuracy of blood counting under varying circumstances, that have added to the present state of dissatisfaction with regard to supposedly scientific methods of blood examination; for hemoglobinometry, as it has been practised, is pretty thoroughly discredited, and either the specific gravity of the blood, or its dried residue, is the only thing one hears talked of where there is any pretence to be at all advanced in blood pathology.

An explanation of the seeming increase of the red blood-cells at altitudes, offered by Professor Grawitz himself, promises also to be pregnant with suggestion. In the dry mountain air much more moisture is given off by the skin, and especially by the lungs, than usual. The serum is thereby lessened in quantity and a relative increase of red blood-cells to a given quantity of fluid blood takes place. The idea seems to indicate that the blood-examination method of the future will have to take account of the plasma as well as the blood-cells, if it is to prove satisfactory and scientifically complete.

A very interesting comment on blood instruments and their accuracy is a series of experiments by Dr. Gottstein here some time ago, apropos of this question of hypercythemia at altitudes. He found that a series of results, corresponding to the changes supposed to be produced in the blood of patients by the rarefied mountain air, could be obtained by exposing the blood-counting instruments to a proportionately lower atmospheric pressure during the counting. With the air in the chamber of the Thomas-Zeiss blood-counter only one-half as dense as it was before, a significant amount more of blood would be contained in it. This amount, though extremely small, easily affects the accuracy of the result, as may well be imagined, because of very large factors which enter into the calcula-

¹ Gas. hebdom. de méd. et de chir., 1897, No. 75.

tion and multiply the original slight error into important magnitude.

After having absolutely refused for more than ten years now to put any faith in the Pasteur treatment for rabies, the Germans have at last resolved to try it. An appropriation for an experimental station for the treatment according to Pasteur's method is one of the items in the medical budget for the year. It is to be carried on in connection with the Institute for Infectious Diseases, Professor Koch's department. Though it is said to be only experimental, it would seem as though this was scarcely more than a half-hearted apology for the refusal to have had anything to do with it before. The treatment itself is far beyond its tentative stage, and each year brings more and more encouraging statistics as to its results in Russia, in Italy, in India, and in Egypt.

During April the German surgeons and physicians hold congresses: the surgeons here at Berlin; the physicians at Wiesbaden, not far from Frankfort. The custom which requires the medical society to meet in different cities in successive years separates it completely from the sister society most of the time. With the many interesting questions which are on the borderland between medicine and surgery, and which inevitably come up for discussion, this is unfortunate, and the Germans generally bewail the fact. The friction of ideas from very different points of view could only serve to smooth the angles of many a crotchety question. The medical meetings this year promise to be of specially universal interest as clinical methods of medical instruction are to be the formal subject of discussion. The subject is to be introduced by von Ziemssen of Munich and von Jaksch of Prague, who may be considered to represent very well the veterans and the young campaigners in the teaching methods at German Universities.

The announcement that Professor von Esmarch will resign his professorship at Kiel at the end of the winter semester and retire to well-earned rest takes away another of the great German medical teachers. Kölliker has just resigned, Haidenhain and Du Bois Reymond have died within the year, and only a few of the men whose teaching was the feature of German medical instruction will carry their professorships over into the new century; and it is a question for speculation if their successors will attract the attention and the students their elders have had.

THE VAGINA A "TOOL CHEST."

DETROIT, February 22, 1898.

MR. EDITOR:—Apropos of the clipping in the JOURNAL of February 17th, on "Foreign Bodies in the Vagina," there is in the Eastern Michigan Asylum a patient whose mischievous habits have given rise to no little annoyance to the attendants as well as destruction of property. For some time it was noticed that screws would mysteriously disappear from the window grating of this patient's room, the panels of the door would be partially cut through as if by a sharp instrument, and various doors and window-frames in the open hall would be found mutilated in some way. The patient's room, bed and clothing were repeatedly searched by the attendants for implements with which those acts of vandalism could be accomplished; but for several weeks nothing was discovered, although the "merry work" still went on.

Finally, it occurred to the Assistant-Superintendent, Dr. Jason Morse, that a physical examination might help to clear up the mystery. This being undertaken, a roll of tissue paper was found concealed in the vagina; and this removed and opened disclosed a corset steel sharpened at one end, and a screw-driver with removable handle. The crafty patient had taken advantage of her anatomical construction, feeling tolerably safe from discovery, and had converted the vagina into a veritable "tool chest."

Yours truly, W. P. MANTON, M.D.,
Gynecologist to the Eastern Michigan Asylum, Pontiac.

METEOROLOGICAL RECORD

For the week ending February 19th, in Boston, according to observations furnished by Sergeant J. W. Smith, of the United States Signal Corps:—

Date.	Baro- meter	Thermom- eter.			Relative humidity.			Direction of wind.		Velocity of wind.		We'thr. •		Rainfall in inches.
	Daily mean.	Daily mean.	Maximum.	Minimum.	8.00 A. M.	8.00 P. M.	Daily mean.	8.00 A. M.	8.00 P. M.	8.00 A. M.	8.00 P. M.	8.00 A. M.	8.00 P. M.	
S...13	30.13	41	46	36	68	57	62	N.W.	S.E.	15	3	O.	O.	
M...14	29.96	35	41	29	71	79	75	S.	S.	1	7	F.	F.	
T...15	29.64	35	41	29	65	93	79	S.W.	E.	8	15	O.	O.	.02
W...16	29.13	38	45	12	89	72	80	S.W.	N.W.	20	28	N.	N.	.15
T...17	30.02	22	32	11	55	43	49	N.W.	W.	20	20	O.	O.	
F...18	30.24	28	37	20	55	75	65	S.	E.	4	4	O.	O.	.01
S...19	30.36	38	38	34	72	82	77	N.	N.E.	6	7	O.	O.	

* O., cloudy; C., clear; F., fair; G., fog; H., haze; S., smoky; R., rain; T., threatening; N., snow. † Indicates trace of rainfall. — Mean for week.

RECORD OF MORTALITY

FOR THE WEEK ENDING SATURDAY, FEBRUARY 19, 1898.

Cities.	Estimated population.	Reported deaths in each.	Deaths under five years.	Percentage of deaths from				
				Infectious diseases.	Acute lung diseases.	Diarrheal diseases.	Diphtheria and croup.	Typhoid fever.
New York	3,438,899	792	299	11.83	23.27	1.43	3.12	.26
Chicago	1,619,228	—	—	—	—	—	—	—
Philadelphia	1,214,256	491	148	12.40	13.20	1.40	8.40	4.20
Brooklyn	1,160,000	—	—	—	—	—	—	—
St. Louis	570,000	188	54	5.83	30.87	1.06	2.12	.53
Baltimore	550,000	196	73	10.71	15.30	2.04	4.59	.51
Boston	517,732	180	58	5.60	17.40	.56	1.02	.56
Cincinnati	405,000	86	—	4.64	8.12	—	1.16	3.18
Cleveland	350,000	94	30	4.26	8.48	1.06	2.12	—
Pittsburg	285,000	127	45	18.17	28.86	3.18	1.58	6.32
Washington	277,000	125	37	8.80	23.20	.80	1.90	2.40
Milwaukee	275,000	—	—	—	—	—	—	—
Worcester	105,050	26	11	19.25	15.40	—	3.85	—
Nashville	87,764	34	3	2.94	35.32	—	2.94	—
Fall River	95,919	55	28	3.64	23.66	—	3.64	—
Lowell	87,193	38	6	2.63	23.67	—	—	2.63
Cambridge	86,812	28	11	3.57	28.56	—	—	—
Lynn	65,220	18	6	33.33	5.55	—	—	22.22
Charleston	65,165	26	6	11.55	3.85	7.70	—	3.85
New Bedford	62,416	28	9	3.57	7.14	—	—	—
Lawrence	55,510	14	6	14.28	14.28	—	7.14	—
Springfield	54,790	19	5	—	10.52	—	—	—
Holyoke	42,364	12	5	—	—	—	—	—
Portland	40,000	—	—	—	—	—	—	—
Salem	36,062	6	1	—	—	—	—	—
Brookton	35,453	6	2	—	—	—	—	—
Malden	32,894	12	3	25.00	8.33	8.33	8.33	—
Chelsea	32,716	10	3	10.00	40.00	—	—	10.00
Haverhill	31,406	13	4	25.07	15.58	—	15.58	—
Gloucester	29,775	—	—	—	—	—	—	—
Newton	28,880	6	1	16.66	33.33	—	—	—
Fitchburg	28,892	9	2	—	11.11	—	—	—
Taunton	27,812	4	0	25.00	25.00	—	—	25.00
Quincy	22,562	4	1	—	—	—	—	—
Pittsfield	21,891	—	—	—	—	—	—	—
Waltham	21,812	4	2	25.00	25.00	—	—	25.00
Everett	21,575	1	0	—	—	—	—	—
Northampton	17,448	—	—	—	—	—	—	—
Newburyport	14,794	7	0	—	—	—	—	—
Amesbury	10,920	—	—	—	—	—	—	—

Deaths reported 2,730; under five years of age 880; principal infectious diseases (small-pox, measles, diphtheria and croup, cerebro-spinal meningitis, diarrheal diseases, whooping-cough, erysipelas and fevers) 273, acute lung diseases 515, consumption 318, diphtheria and croup 76, typhoid fever 45, diarrheal diseases 35, measles 30, scarlet fever 27, whooping-cough 20, small-pox 16, cerebro-spinal meningitis 12, malarial fever 7, erysipelas 5.

From measles New York 16, Philadelphia 7, Pittsburg 4, Baltimore, Boston and Haverhill 1 each. From scarlet fever New York 12, Philadelphia 7, Baltimore 2, St. Louis, Boston, Cleveland, New Bedford, Newton and Melrose 1 each. From whooping-cough Pittsburg 5, New York and Baltimore 3 each, Philadelphia, Washington and Lynn 2 each, Cambridge and Chicopee 1 each. From small-pox New York 16. From cerebro-spinal meningitis Worcester 4, Boston 3, New York and Washington 2 each, Philadelphia 1. From malarial fever St. Louis 5, New

York 2. From erysipelas New York 3, Baltimore and Washington 1 each.

In the thirty-three greater towns of England and Wales, with an estimated population of 11,218,378, for the week ending February 12th, the death-rate was 20.7. Deaths reported 4,448; acute diseases of the respiratory organs (London) 468, measles 171, whooping-cough 123, diphtheria 77, diarrhea 49, scarlet fever 43, fever 34.

The death-rates ranged from 11.3 in Croydon to 26.3 in Plymouth; Birmingham 22.5, Bradford 14.9, Cardiff 14.1, Gateshead 22.6, Hull 18.4, Leeds 17.6, Leicester 18.0, Liverpool 21.1, London 22.2, Manchester 22.3, Newcastle-on-Tyne 21.3, Nottingham 15.7, Sheffield 19.7, Sunderland 22.1, West Ham 16.7.

OFFICIAL LIST OF CHANGES IN THE STATIONS AND DUTIES OF OFFICERS SERVING IN THE MEDICAL DEPARTMENT, U. S. ARMY, FROM FEBRUARY 19, 1898, TO FEBRUARY 26, 1898.

Leave of absence for four months, with permission to go beyond sea, to take effect on or about March 15, 1898, is granted **LIEUT.-COL. WILLIAM D. WOLVERTON**, deputy surgeon-general, chief surgeon, headq'rs., Department of the Columbia.

Leave of absence for two months, with permission to go beyond sea, to take effect on or about March 1, 1898, is granted **MAJOR HENRY S. KILBOURNE**, surgeon, Madison Barracks, N. Y.

CAPTAIN PAUL F. STREUB, assistant surgeon, ordered to accompany Co's. A. and G., 14th Infantry, to Skagway, Alaska, and there take station.

FIRST-LIEUT. JOHN S. KULP, assistant surgeon, ordered to accompany Co's B. and H., 14th Infantry, to Dyess, Alaska, and there take station.

MAJOR WILLIAM W. GRAY, surgeon, is relieved from duty at Fort Apache, Ariz., to take effect upon the expiration of his present leave of absence and ordered to Fort Huachuca, Ariz., for duty.

Leave of absence for one month, to take effect on or about March 1, 1898, is granted **CAPTAIN CHARLES B. EWING**, assistant surgeon, Jefferson Barracks, Mo.

OFFICIAL LIST OF CHANGES OF STATIONS AND DUTIES OF COMMISSIONED OFFICERS OF THE UNITED STATES MARINE-HOSPITAL SERVICE FOR THE SEVEN DAYS ENDING FEBRUARY 17, 1898.

SAWTELLE, H. W., surgeon. Upon being relieved by Surgeon **H. R. CARTER** to proceed to Chicago, Ill., and assume command of Service. February 17, 1898.

AUSTIN, H. W., surgeon. To assume temporary charge of quarantine division in Bureau. February 15, 1898.

CARTER, H. R., surgeon. To rejoin station at Chicago, Ill., February 17, 1898. Relieved from duty at Chicago, Ill., and directed to proceed to New Orleans, La., and assume command of Service. February 17, 1898.

BROOKS, S. D., passed assistant surgeon. Relieved of command of Service at Port Townsend, Wash., and to remain in command of Port Townsend Quarantine. February 17, 1898.

PERRY, T. B., passed assistant surgeon. Upon being relieved by Passed Assistant Surgeon **J. B. STONER**, to proceed to San Francisco, Cal., and report to medical officer in command for duty and assignment to quarters. February 17, 1898.

STONER, J. B., passed assistant surgeon. Upon being relieved by Surgeon **H. W. SAWTELLE**, to proceed to Buffalo, N. Y., and assume command of Service. February 17, 1898.

WERTENBAKER, C. P., passed assistant surgeon. To proceed to Spartanburg, S. C., for special temporary duty. February 14, 1898.

PERRY, J. C., passed assistant surgeon. Upon being relieved by Passed Assistant Surgeon **RUPERT BLUE**, to proceed to Port Townsend, Wash., and assume command of Service. February 17, 1898.

BROWN, B. W., passed assistant surgeon. To proceed to Key West, Fla., and report to medical officer in command for special temporary duty. February 15, 1898.

BLUE, RUPERT, passed assistant surgeon. Upon being relieved from duty at San Francisco Quarantine, to proceed to Portland, Ore., and assume command of Service. February 17, 1898.

OAKLEY, J. H., passed assistant surgeon. To proceed to New Orleans, La., and report to medical officer in command for duty and assignment to quarters. February 15, 1898.

MATHEWSON, H. S., assistant surgeon. Upon being relieved from duty at San Francisco, Cal., to proceed to San Francisco Quarantine and report to medical officer in command for duty and assignment to quarters. February 17, 1898.

COLLECTIVE INVESTIGATION ON THE ACTION OF COLD IN PNEUMONIA.

February 26, 1898.

My three collective reports already published on local cold applications in the treatment of acute pneumonia give a record of 299 cases so treated, with ten deaths, or a mortality rate of 3.35 per cent.

Being desirous of pursuing this investigation still further, I take the liberty of asking those who have tested this measure to kindly give me the result of their experience. Full credit will be given to each correspondent in the report which I hope to publish soon. Blanks for the report of cases will be cheerfully furnished by me, with postage for return of same, on application.

THOMAS J. MAYS, M.D., 1829 Spruce St., Philadelphia.

SOCIETY NOTICES.

BOSTON SOCIETY FOR MEDICAL IMPROVEMENT.—A regular meeting of the Society will be held at the Medical Library, 19 Boylston Place, on Monday evening, March 7th, at 8 o'clock.

Dr. A. T. Cabot will read the first paper of the evening: his title: "Some Observations upon Malignant Adenoma of the Rectum and its Treatment, by Kraske's Operation." **Drs. C. B. Porter, H. L. Burrell and P. Thorndike** have been asked to take part in the discussion.

Dr. A. Coolidge, Jr.: "Changes in the Turbinate Bones in Connection with Deformities of the Septum." **Drs. S. W. Langmaid and J. W. Farlow** will discuss the paper.

JAMES G. MUMFORD, M.D., Secretary, 197 Beacon St.

AMERICAN NEUROLOGICAL ASSOCIATION.—The Council announces that the twenty-fourth annual meeting of this Association will be held in New York at the New York Academy of Medicine, No. 17 West Forty-third Street, on Thursday, Friday and Saturday, May 26, 27 and 28, 1898. There will be two sessions daily, one from 10 A. M. to 12.30 P. M., and the other from 2 P. M. to 4.30 P. M.

APPOINTMENTS.

JOEL E. GOLDTHWAIT, M.D., has been appointed to the position of orthopedic surgeon and **CHARLES F. PAINTER, M.D.**, assistant orthopedic surgeon at the Carney Hospital.

RECENT DEATHS.

JOHN PARKER MAYNARD, M.D., M.M.S.S., of Dedham, died February 26, 1898, aged eighty-one years.

JOHN YALE, M.D., M.M.S.S., of Ware, died at Beloit, Kan., February 25, 1898, aged seventy-seven years.

CALVIN STEVENS, M.D., M.M.S.S., formerly of Boston, died at Auburndale, March 1, 1898, aged eighty-one years.

BOOKS AND PAMPHLETS RECEIVED.

The Abuse of Medical Charity. By Frederick Holme Wiggin, M.D., New York. Reprint. 1897.

The Value of Modified Cow's Milk in Infant Feeding. By David James Evans, M.D., Montreal. Reprint. 1897.

Examination of the Urine as a Means of Diagnosis. By Theodore W. Schaefer, M.D., Kansas City, Mo. Reprint. 1897.

Notes on Micro-organisms Pathogenic to Man. By Surgeon-Captain B. H. S. Leumann, I.M.S., M.B., London, D.P.H. (Cambridge), etc.

The Report to the Medical Society of the County of New York of its Committee on the Abuses of Medical Charity. Reprint. 1897.

A Contribution to the Pathogenesis and Etiology of Diabetes Mellitus. By Heinrich Stern, Ph.D., M.D., New York. Reprint. 1897.

Aids to Aseptic Technique. By A. D. Whitney, M.D., Assistant Surgeon to the German Hospital, Philadelphia. Philadelphia: J. B. Lippincott Co. 1898.

The Progress of Laryngology. Transillumination in Diseases of the Nose, Throat and Ear. By W. Scheppegeirell, A.M., M.D., New Orleans, La. Reprints. 1897.

The Urgent Need of Sanatoria for the Consumptive Poor of Our Large Cities. By S. A. Knopf, M.D. (Paris and Bellevue, N. Y.), New York. Reprint. 1897.

Deficient Excretion from Kidneys not Organically Diseased and Some of the Diseases Peculiar to Women, and Diseases of the Skin. By L. Duncan Bulkley, A.M., M.D., New York. Reprint. 1898.

Manuels Paul Lefert, Lexique-Formulaire des Nouveautés Médicales et Biologiques, Nouvelles, Maladies Nouveaux Syndromes, Nouveaux Remèdes, Nouvelles Opérations. Par le Professeur Paul Lefert. Paris: J. B. Baillière et Fils. 1898.

Lecture.

ON SOME OF THE QUALITIES NECESSARY FOR BEING A GOOD NURSE.¹

BY FRANCIS S. WATSON, M.D., BOSTON.

I HAVE come here to-night at the kind invitation of Dr. Worcester to speak to you on a subject about which I have thought a good deal from time to time, and one which is important to nurses. It is with reference to some of the qualities that seem to me to be the most essential to the making of a good nurse, and of her relation to the families and the patients whom she tends in private practice.

Two considerations have made me select this subject. One is the fact of the scant attention that it receives, so far as I can learn, in the teaching of trained nurses; and the other is the growing dissatisfaction in the community with them, which, I think, is almost wholly due in many cases to the absence of the personal qualities which go to make the good nurse. Let me begin by a few examples of contrasting traits as illustrations.

Not long ago I had the charge of a patient who was dying. I had placed him in the care of an excellent nurse, who unfortunately became ill after ten days of the work, and who with great reluctance was obliged to give up the case. The patient had grown used to her, and she had shown remarkable tact in caring for him, especially in the matter of feeding, which, owing to the nature of the disease, was an unusually difficult task. The nurse who came to replace her was younger, both in age and experience, and she had the disadvantage of following one whose services to the patient had been particularly grateful. I found, as I had feared, that she could not succeed in feeding the sick man so well as the other had done. I therefore asked the first nurse to carry out that particular part of the care.

I watched with curiosity the result of this somewhat unusual way of dividing the work between two nurses; for it was not, I knew, an easy thing for the one who had had full charge, and who was an older nurse to take part charge under the younger one who had been but a day or two with the patient, nor was it easy for the new one to have her work broken in upon and to feel that she was not so good in so important a matter as that of feeding.

I presently saw that all was going well, and that the first nurse was not only feeding the patient but also doing all she could to help the other in whatever way she could, or was asked to by her; while the latter, instead of resenting this as an interference with her care of the patient or as an implied criticism from the doctor, welcomed any suggestions made to her by her colleague. Owing to the excellent dispositions of these two nurses the patient was served doubly well, and received all the comfort and relief possible. It gives me pleasure to say that one of these nurses belonged to this school, and the other to the Boston City Hospital.

Had my experience of trained nurses been only with those of such qualities as I have just described, I should have lost the pleasure of addressing you to-night, on this subject at any rate, for there would have been nothing to be said, unless it were to speak in unstinted

praise. But, unfortunately, there is no such uniformity of admirable traits; and personal experience with some nurses of quite contrary natures has furnished me with a larger number than I wish it had, of nurses whose conduct in one or more respects is of the sort that once made a lady to whom my first injunction was when she had sickness in her house, to send at once for a trained nurse, to reply with a tone of despair, "O doctor, must I have another of those women here? I have had four during the past year, and each was a greater curse to us than the last." And she then recounted to me her trials with them, which in some degree at any rate, justified her exclamation.

I once had charge of an old gentleman who was dying of pneumonia. One of the two nurses who were with him had been most highly recommended from one of our largest training-schools. One day the patient, in a moment of irritability, said to her, "Damn it, nurse, don't do that so"; and on several other occasions he found fault with her way of doing some small thing or other, as indeed he did with several members of his family. On the third day of her attendance on the case the nurse came to me and said that she wished to leave. I asked her why, and she told me that she had been sworn at by the patient—in the way I spoke of above—and that he was not a sympathetic person to her, and she could never properly nurse an unsympathetic individual. This incident would have been laughable had the circumstances been less grave. As it was, I need not comment on her conduct. She left—of course—promptly, but at a moment when the patient was very dangerously ill, and when the change might well have been of serious import to him, for she was a good nurse technically and he was perfectly content with her. His swearing at her on that occasion was simply the expression of irritability from his illness and not directed at her personally, which she would have seen had she not been so fully occupied with the sense of herself.

It is of frequent occurrence to hear a nurse say to the patient or to some member of the family, or to the attending physician, with regard to some detail of treatment, "Well, I never saw it done in that way," or "At the hospital we were always taught to do it so and so," or "Dr. So-and-so always did it in such a way."

These incidents I have selected from my own personal experience of a considerable number of similar ones. They demonstrate, when one realizes that they are but a fraction of the whole number, the fact that such women as these are carrying additional trouble into many households, in which their presence should be welcomed as that of ministers of mercy and carriers of help and comfort. And what is also important, they are discrediting trained nurses as a class, and doing great injustice to the rest of their comrades, amongst whom are some of the noblest women we ever see.

There is one class of nurses of which I have never heard any complaint with regard to the personal qualities which I mentioned. I refer to the members of some of the religious sisterhoods, both Catholic and Protestant. For this there is a good reason, and it is, I think, to be found in the attitude inculcated in them by these orders toward whatever duty they undertake. This attitude is one of entire self-forgetfulness, and the sinking of themselves in their mission. This is the particular feature which I believe makes the sisters so invaluable in the sickroom. The only knowl-

¹ Delivered at the Waltham Training School for Nurses, January 11, 1898.

edge one has of them is that there is a helpful presence in the home, that the orders of the physician are silently executed. There is no discussion; one hears no reports, then or later, that the nurse has criticised the doctor or praised another physician at the expense of him who is in attendance; no comments on the treatment or the nurse's ideas as to the nature of the disease; there is no talk with the patient or family about other patients they have nursed, or the detail of any diseases. I would not be understood as meaning that this special class of nurses is without faults; but I do assert that the discipline and self-denial acquired in the training imposed by their sisterhoods frees them from the sense of self in a way that is not often met with elsewhere, and that in so doing it fits them in one of the very first and most important requisites for being good nurses. On the other hand, there are those of us who have reason to be grateful to trained nurses for their inestimable help in many hours of sorrow and trial, and can testify to a goodly number who have carried the standard of their order nobly, and planted it where it should be placed, on high.

The relative rarity among trained nurses of the qualities I have just spoken of as belonging to the sisterhoods is, I think, to be referred to several things, amongst which are these: Our large hospitals require a large number of nurses, and it is obvious that of those selected for these positions there will be a certain proportion of women who have no natural fitness for the work. The work that these institutions demand of their nurses is arduous; it brings them in contact with some of the roughest and worst classes of the community, and it gives but little time or opportunity for learning the niceties of private nursing. The nurses in these hospitals remain in them, as a rule, but two years. They come there to be taught the technique of their profession. There is nothing that tends, therefore, to create in them or associate with their training the thought of nursing as a permanent mission of their lives or that identifies them with the best aims of the institution in which they are trained.

In making this partial comparison between the hospital trained nurse and those of the sisterhoods with reference to this particular question of some of the personal qualities, it must be remembered that with the latter the question of making their living out of their profession is eliminated; and, furthermore, the fact of a woman's joining a religious order is presumptive evidence that she has ingrained in her nature the desire and the fitness for a life of self-denying devotion which gives her a special and the most important qualification for becoming, in the sense of the personal qualities at least, a good nurse.

If the time which is given to their instruction upon scientific matters and the nature of disease were devoted to making nurses realize what their conduct toward the patient and the family should be, and to impressing upon them fully the requirements of their high calling, nurses and patients would be gainers. Think of what a mission nursing is! It calls for the exhibition of the highest human qualities as no other in the world does. The patience is taxed to the uttermost by the unreasonableness and irritability of the sick, by the injudicious interference, often well meant, of relatives and friends; and coming, as they often do, when the power of self-control is lowered by the fatigue of long-continued work, these things are

hard to bear. There is no profession, so far as I know, which does not have in its ranks a certain proportion of persons of inferior or bad character; but in none is there demanded such exceptional strength and goodness of character as in those of the nurse, the priest and the physician; and because of this fact, defects, delinquencies and unfitness for the special mission they have undertaken assumes a greater importance here than elsewhere. The members of all three necessarily become acquainted with the weaknesses and sins of the people they attend; absolute trust has to be reposed in them, and to abuse this trust in the presence of suffering and sorrow, is a correspondingly grave offence.

In the great majority of cases the women of the training-schools of our large hospitals make admirable institution nurses; and in their capacity for hard work, technical knowledge and courage, they leave little to be desired. No one would contradict this who had seen, as I have, the nurses of the Boston City Hospital go through their terms of service in the diphtheria wards before the days of antitoxin. It was no fancied danger that they encountered there in the line of their duty, but grim reality. The percentage of the attendants upon the patients with this disease, who died from it, or took it, was as great as that of the killed and wounded in some of the bloodiest battles of the world. These women were well aware of this danger when they undertook their task; but there was no wavering, and no soldiers ever stood more steady under fire. It is not in some of the highest qualities, therefore, that they are lacking; and the knowledge of this makes it seem all the more regrettable that such failings as those I have spoken of should be seen in unfortunate contrast in a certain number of these — women in private nursing.

A most important quality required in private nursing is tact, which includes the ability to get on with the members of the family and the servants as well as with the patient. A quiet and encouraging manner should always be maintained. Anxiety or depression in regard to the patient, the sense of irritation, or expression of discouragement, should never appear in the nurse's face. It is incalculable what a bright smile, a quiet way of moving and a deft hand can do for a patient. A light step and a quiet way of moving things about are important. To have cups and saucers and dishes clattered, chairs set down with a thump, bottles overturned and broken, a towel handed to you with a jerk are disagreeable things when one is well, but for the sick person they may be serious obstacles to convalescence. The nurse needs to exercise much diplomacy in order to keep her control of the patient and to carry out the physician's orders. In order to do this she must, of course, not be interfered with; but she should secure this control without asserting herself disagreeably and irritating the members of the family by so doing. It is always better to appeal quietly to the attending physician, stating any difficulties that she has met with; and in most cases he will be able to give her a clear field for her work.

It is true, of course, that the nurse often finds herself in a household of anything but pleasant, well-mannered or intelligent people. She has to deal with all sorts of persons, and her trials from this source are many and varied. It is just because of this that she must be a woman of unusual tact, strength, sweetness of disposition and self-forgetfulness. The aggressive assertion of petty authority is a serious fault. So also

are discussions with the members of the family. She must meet people who are enough to try the patience of a saint, and her patience should be as nearly of that quality as it is given to humans to have.

When you meet that sort of interference in your attendance on the sick, that is so hard to bear sometimes, such as one so often sees, for example, from the injudicious fondness of mothers for their children, or the sense of jealousy at the presence of a stranger suddenly brought into the relation of intimacy with their own that nursing necessitates in many respects, remember that while it is hard for you to bear with such interruptions to your work, it is also hard for them. Instead of thinking of your own feelings, let your first impulse be to put yourself in their place. Picture yourself as the wife or mother of the sick one whom you have cared for with such devotion as only springs from a true woman's love, and then at the moment when you are racked with anxiety and dread, wearied with the fatigue of having had, as so often happens, the sole care of ministering to the sick person, before the nurse has been finally sent for, think, I say, of giving up all that care, of being, as is often necessitated, told by the doctor that you must no longer perform the thousand and one tender offices that you have been trying to do, of being excluded, perhaps, except for short periods, from the sickroom, in which you cannot but feel that you before all others have the right to enter, think of watching another woman take your place, assume the control of one who belongs to you, see her succeed in giving comfort and relief which you are longing to give, being made to realize that she succeeds where you have failed, all this and much more; and then as nurse you will readily make a wide margin of allowance for the interferences, the annoyances of a personal nature arising from such causes as they so often do.

One of the details of tact is the concession to the patient and to members of the family in unimportant matters. It is a mistake to carry out the physician's orders with such a literal hard and fast manner that every point involves a discussion with the people about you, which leaves you and them with a feeling of annoyance and ends by putting additional obstacles in your way. And even in the more essential things, an apparent yielding, or at any rate avoidance on the nurse's part, of all argument about them, will enable her to secure her end in the quickest and easiest way.

A great deal of the comfort in a nurse's subsequent relation with the family depends upon her manner of entering the home, and particularly the sickroom. She is coming, remember, to deal with a serious thing, and she should come with but one purpose in her mind—that of carrying as much help as she can to the suffering person, and of bringing encouragement to all the household. I well remember a charming looking young nurse who on arriving in a house of a patient of mine walked in with great briskness, looked about with varying approving or critical glances at the furniture, pictures, etc.; she then entered in a sprightly way upon a short talk on general topics with the head of the house, in the course of which she touched upon the charming features of the house and the grounds, and other kindred topics, and finally seemed to become aware that there was a sick person there whom she was perhaps expected to do something about. She was fashionably dressed, and gave me the impression of having come to make an afternoon call.

This was, of course, an extreme example—a ludicrous one, if you like; but it will serve perhaps all the better to make emphatic what I wish to note as of real importance, namely, the reverse of such characteristics. One instinctively feels reliance and rest at once on seeing enter one's home a nurse with a quiet, self-possessed manner, gentle voice, and neat and quiet dress, one who shows that she has no other interest than to care for the patient, and relieve the weight of anxiety that is there. If you meet, as you will, with an ill-mannered greeting from ill-bred people, or the lack of consideration that comes from such, or as it sometimes does from the absorption of people in their own sorrows, disregard it, just as you should be able to disregard the lack of many household conveniences.

One of the most difficult parts of the household to deal with is that of the servants. One should never forget that in time of illness any additional work put upon them, especially when the family is not wealthy and does not have an extra number of people to help out, is likely to make them leave; so that care should be taken by the nurse to avoid giving them anything to do for her personally that can be avoided. The nurse should not hesitate to clear up the things she has been using, for instance, if she sees that the servants are hard pushed to keep even with their own work. If she has things said or implied to her by them that are intended to hurt her and to be disagreeable, let her remember that they can never offer an indignity to her if she has not invited it, but that such words are an indignity only to those who speak them. Any nurse who has native dignity, and there is no other deserving the name, can always afford to disregard the vulgar expressions of unkind intent from people of that or any other class.

One of the most valuable things in the attendance upon patients is that of anticipating their wants. I know of nothing that shows the native quality of a nurse more than this. A good nurse seems to have the intuitive knowledge of what her patient needs five minutes before the actual want becomes important to the individual; this is largely a quality of the imagination, which enables her to put herself in the sick person's condition.

The mistake is often made by a very conscientious nurse in carrying out too literally the treatment prescribed by the physician. A certain margin of discretion must always be left to the nurse; and a good nurse will never abuse it to the patient's harm, or fancy that because she is allowed it, she is at liberty to assume responsibility that does not belong to her. As an example of the too literal carrying out of the physician's orders, I once asked a nurse who was being examined for her diploma, this question, "If you had been ordered to put fresh poultices on a patient's arm every two hours, what circumstances, if any, would justify you in prolonging the intervals of their application?" She said, "None." I then asked, "Suppose the patient was having the first good sleep he had had for many days, would you think it right to wake him to change the poultice?" She said, "Certainly." In this she would have been mistaken. While dressings should be applied and medicines given as exactly as possible according to the physician's orders, yet there are times when rigid insistence upon this being done at the exact moment will fret the patient and do him far more harm than a delay of ten or fifteen minutes could possibly do.

A mistake frequently made is that of asking the patient whether he would like to have this or that, or of saying, "I am going to do so and so now." The thing, whatever it may be, should simply be brought; and it should be assumed it is to be taken or done, as a matter of course. This is especially true of food.

But the real essential of being a good nurse lies in the character of the individual. Good nurses cannot be made of ordinary women; and of no class of workers is it so true, I think, as of them, that the peculiar qualities requisite for their profession are born in them, not made. I go so far as to say that no woman who does not feel the native instinct and love for caring for the sick should enter the ranks of this profession. If a woman has that impulse sufficiently strong in her she is almost certain to make a good nurse. If she is undertaking it from any other motive than such natural love for the work, she is nearly equally certain to make something much less than a good nurse, and she may very likely make one of those who bring discredit to the profession. If any of you here have entered this profession from a less worthy motive than that I have said, I counsel you to leave it.

There are certain natural gifts—such as comeliness, native deftness of the hand, the power of rapidly learning the technical matters of the art of nursing—which are beyond one's power to control, and which make it easy for their possessor to excel; but their absence need not discourage any one who has the real earnest love of the work in her from undertaking it, she will have more obstacles to overcome, that is all.

A nurse's life should be thought of as a mission only, and rightly conceived and administered I know of none higher. It is a life of self-denial, and often of the most arduous requirements, and its material benefits are few. It demands enthusiasm for the thing itself; it demands tact, strength, self-control, broad human sympathy, and above all self-forgetfulness, such absorption in her work that she has no time to think about her rights, her authority, her dignity, whether some one is intending to slight her or to undervalue her importance, or to even think of losing her temper.

If your rewards are not in material ways, there are rewards which are of a higher nature, which are to her who has the real love of her mission deep in her heart far dearer. These are the seeing pain lessen or vanish under the tender and knowledgeable touch of the hand, of being the savor of lives, and the restorer of strength; of the consciousness of lifting the heavy burden of dread and anxiety from the friends and family of the sick, of putting order and system in the place of disorder. Her efforts will not meet with loud applause, often her best work will not be appreciated, or will pass unnoticed, even; but often she will draw to her the deep gratitude of those for whom she works, and she will always have that best of rewards—satisfaction with herself.

I would not be understood as exacting that the nurse should be a being of more than earthly perfection. I have asked nothing of her that does not fall within the actual attainments of a really good woman who has a special fitness as well for this particular work. We do not look to you to be angels of heaven, but there have been some of your band that have shown themselves angels of earth, women who have carried the blessings of their womanly sweetness and tenderness, and executed their errand of mercy with ungrudging

unselfishness on battlefields, amidst fatal epidemics, and in the more commonplace but not less important task of tending the sick in the daily routine of ordinary home-nursing, in a way that should make all men honor them, and which has made men honor them. They have lighted the way in so doing for those who follow them, and no one of you should be content to strive for less than they have actually accomplished. Put on one side all pettiness and all smaller motives when you confront illness, and forget that you exist except as soothers of pain.

The power to contradict the dissatisfaction with the trained nurse lies with you who are going out to-day into the families of the people who need you; and I am sure that you can be relied upon to make her name welcomed and honored in many households where it is now discredited because of the unworthiness of a few who have misconceived the obligations and the nature of their work.

Original Articles.

PULMONARY ABSCESS AND GANGRENE.¹

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PULMONARY gangrene is due to the growth in the lung of saprophytic bacteria, probably largely anaërobic, or at least facultative anaërobic. These saprophytes, however, according to Babès,² cannot of themselves produce gangrene, but are inevitably associated with some other organism, generally a pyogenic coccus. Thus in 12 cases he found the association to be with the staphylococcus, in 12 with the streptococcus, and in three with an extremely virulent pneumococcus. Indeed, all these cocci showed remarkable virulence. But these of themselves could only effect suppuration or necrobiosis, while upon the soil thus made ready the saprophytes found a favorable condition for growth. Other concomitant microbes were those of diphtheria in 10 out of 24 cases.

These teachings of bacteriology are in accord with the clinical observation that gangrene is often connected with abscess. Even where the initial disease has been pneumonia or phthisis, pus formation often intervenes between this original affection and the consequent gangrene. In many cases an accumulation of pus is expectorated representing a simple abscess, but as the cavity successively refills, the discharge becomes increasingly fetid.

Thus gangrene is never a primary affection. Its commonest precursors are certain diseases of the lungs themselves, notably pneumonia, phthisis (with cavity formation), broncho-pneumonia, peri-bronchitis, bronchitis (especially if putrid or accompanied by bronchiectasis). Indeed, the bronchi are the paths through which the mixed infection enters. As Babès expresses it, "the microbes of pneumonia are the first to clear the barrier which the termini of the bronchi oppose to them, and they prepare the soil for the development of the saprogenous organisms, and so for the gangrene."

Foreign bodies, as cherry-pits, particles of food, coins, etc., have produced gangrene. A patient once

¹ Read before the Boston Society for Medical Improvement, November 29, 1897.

² Babès: *La Semaine Méd.*, 1896, xv, p. 528.

told me that while "logging" some years before, he was smoking a clay pipe, when he was struck under the chin by a log, and was rendered unconscious. The pipe was found broken on the ground. Soon after, the patient developed a cough, with fetid expectoration. He lost much flesh and strength, and his physicians diagnosed phthisis. After a year or two he had an unusually violent spasm of cough, which brought up the missing end of his pipe-stem; his "phthisis" disappeared, and with the healing of what was doubtless a local gangrene he regained his former health.

Other causes of gangrene have been pulmonary emboli, traumatism and possibly gas-poisoning.

Again, the predisposing causes of this affection may lie outside the lungs, in the form of retro-pharyngeal or tonsillar abscesses; as has already been intimated, in diphtheria, and in other infectious diseases—as measles, scarlatina, small-pox, erysipelas, and, most frequently of all, grippe.

The gangrene may be even metastatic, as in a case mentioned by Babès, where there was cancer of the pylorus, with gangrene *in situ*, and a metastasis to the lungs not of the cancer but only of the gangrene.

Such being the conditions antecedent, especially if in addition the resistance of the body be diminished by want, cold, alcoholism or convalescence from severe disease, or by a vice of nutrition like diabetes, the final step is the implantation on this receptive soil of the saprophyte, which doubtless varies in different cases, for gangrene is not due to any specific organism. E. Leyden and M. Jaffé* were inclined to incriminate the leptothrix buccalis, or rather a variety of it, leptothrix pulmonalis. But later observers have found various other organisms involved, including spirillæ from the mouth and anaerobes like the bacillus of malignant edema, and one resembling the coli communis.

The records of the Boston City Hospital, including both medical and surgical services since the year 1880, contain altogether 16 cases diagnosticated "pulmonary abscess" and 20 diagnosticated "pulmonary gangrene." The two classes, however, were so intimately connected that it has seemed wise to consider them together.

Of these 36 cases 20 died in the hospital. Of the remaining 16, four were discharged not relieved and all probably destined to die; eight were said to be "relieved," but several of them were not in a promising condition, and four were discharged "well." In eight of the cases there were autopsies, and these cases I will describe as briefly as possible:

CASE I. J. A. R., age fifty, farmer. (Service of Dr. Folsom.)

July 3, 1884. Always well till two months ago. Cough with expectoration, at first slight, muco-purulent, then increasing in amount. One month ago it became dark in color and fetid, and so continues. Cough now constant. Emaciation. No pain. Some dyspnea. Temperature 100.4°, pulse 100, respiration 30. Sputum brown, copious, foul, odor perceptible ten feet away from patient.

Heart apex, nipple line; short presystolic murmur.

Left chest, front and back, has coarse and fine moist râles, occasionally sonorous. Right side, similar signs; and an area of dulness in front, most intense at level of third rib, extending nearly from clavicle to nipple. Obscure respiration, diminished voice; corresponding signs in back. Increasing pain in right chest; dyspnea; later orthopnea.

Died July 14th.

Autopsy (July 14th).—Heart: right ventricle hypertrophied, chronic endocarditis, mitral stenosis, aortic and

mitral insufficiency. Left lung and pleura normal. Right pleural cavity obliterated, except for lower one-third, which contained by estimate 750 c. c. foul-smelling, grayish fluid and foul-smelling gas; the wall lined with a recent false membrane about four millimetres thick. Pleural surfaces elsewhere adherent by a similar false membrane. The whole upper lobe of the right lung, except the anterior quarter, is represented by a grayish-black, shreddy mass with exceedingly foul smell. This gangrenous portion, occupying the posterior upper three-quarters of the lobe, was only about one-third its normal size. The remaining quarter (anterior) is pale, the alveoli filled with non-aerated fluid; the lower lobe atelectatic and carnified.

CASE II. C. C., age thirty-three, weaver. (Service of Dr. Rotch.)

August 29, 1887. Has had several attacks of quinsy. Cough for eighteen months. Loss of 12 pounds in weight. Loss of strength. Expectoration free, mostly clear and watery, with clumps of pus. Two days ago pain in the left side below rib margin, with great dyspnea; now orthopnea. Temperature 102.5°, pulse 126, respiration 45.

Soft systolic murmur at apex of heart.

Left chest dull above eighth rib, flat below. Tympany above left clavicle. Diminished fremitus at left base, behind. Numerous moist râles, with bronchial breathing and voice; no splashing. Breathing diminished under left clavicle. A small area (two sq. in.) below angle of right scapula, indicating consolidation.

Numerous attacks of great dyspnea. Paroxysms of cough, with expectoration of two sputa-cupfulls of shreddy, white and yellow matter, without blood, with considerable pain. This was followed by relief of dyspnea.

Two days later (September 1st) there were tympany and cavernous breathing, with bubbling râles over the left lower back; abundant coarse moist râles at the right back. Pain across both sides of the chest, orthopnea. Expectoration fetid, at times abundant.

Died September 4th.

Autopsy, September 6th.—Acute pericarditis. Left pleura adherent except at lower part, which contained 300 c. c. foul-smelling, thin pus. The walls of this cavity covered with fibrin. Communicating with this cavity by a hole big enough to admit the thumb was a cavity in the lung itself, as big as a lemon, partly filled with cheesy material, and walls shreddy. Throughout the left lung numerous cavities with cheesy walls, mostly in the upper lobe. Intervening portions of lung in lower lobe partly solidified, dark red in portions, shreddy and gangrenous.

Right pleural surface adherent over lower lobe, which was partially solidified, containing recent broncho-pneumonic nodules, gangrenous. Middle lobe contained several circumscribed cheesy tuberculous nodules. Bronchial mucous membrane of left lung purplish in color, shreddy. Odor of both lungs, especially the left, very foul.

Here the original disease was evidently tubercular, of a year and a half duration. A cavity had formed, had become gangrenous and burst into the pleura, with the formation of a gangrenous empyema. There was a gangrenous bronchitis and diffuse gangrene of the lungs. A recent broncho-pneumonia of the healthier lung had then developed and had itself become involved in the gangrenous process.

CASE III. H. C. P., brakeman, age twenty-six. (Service of Dr. Sumner.)

February 5, 1889. Four days ago chill, headache, nausea, vomiting, fever, epistaxis. Temperature 102°, pulse 112, respiration 52. Well developed and nourished.

Systolic murmur at apex, and heard in axilla. Pulmonic second sound increased.

Three days later signs of consolidation on right side (middle lobe) with friction rubs. February 9th there were fine râles also in the left axilla; and two days later bronchial breathing. There is no record of offensive sputa.

* Deutsch. Archiv. f. klin. Med., 1886, II, p. 483.

Died February 13th.

Autopsy.—Left pleural cavity showed no fluid; here and there circumscribed area of false membrane. On section of the lung corresponding to these points were found abscesses the size of a pea. Remaining portions of lung firmer than usual and edematous.

Right pleural cavity contained three litres of fluid, right lung collapsed, atelectatic. Pleural surface covered with false membrane. In outer portion of right lower lobe a circumscribed mass, size of an English walnut, gangrenous, grayish-black and purple.

Spleen enlarged five times. Adherent to diaphragm. On section the neighborhood of this adhesion contained a gray and softened mass the size of an English walnut. Follicles enlarged.

The history and physical signs of this case would have warranted the diagnosis of pneumonia, and the death was at a period not too late to correspond to the crisis of that disease. Nor was there any odor to the sputum to give a hint of the gangrenous process going on in the lung. The softened spot in the spleen was regarded by the pathologist as an anemic infarction.

CASE IV. H. C. H., male, age sixty-two. (Service of Dr. F. H. Williams.)

July 23, 1891. Mother died of phthisis. Patient sick six weeks. Cough, much dark sputum. Percussion high pitched, both apices. Respiration harsh, especially at left apex. Few moist râles at both apices, most numerous on left. No tubercle bacilli found.

Died August 6th.

Autopsy.—Showed chronic pleurisy in right lung. Fresh fibrinous pleurisy in left. The greater part of the right upper lobe was a trabeculated cavity, more or less filled with thick, dirty, gray fluid, with many small, soft, yellow, opaque masses. In some places the cavity extended to the pleura.

CASE V. M. P., widow, age forty-four. (Service of Dr. Withington.)

July 31, 1895. Three years ago pneumonia. Was sick two weeks; slow recovery. Cough off and on since. Loss of weight. One month ago gave up work, the cough being worse. Vomiting for two weeks. Diarrhea for four days. The temperature, at first 99°, rose for five days, then declined gradually and was subnormal the day of her death.

The physical examination showed dulness at right apex, front and back; prolonged expiration, fine râles. There was no amphoric breathing and no bad odor of sputum. Percussion over right chest revealed marked tenderness.

Autopsy.—Both lungs strongly adherent to costal pleura. Left lung of increased density; on section mottled red and gray; upper lobe near apex showed small calcified masses. Right lung, whole upper lobe replaced by a cavity through which ran many trabeculae corresponding to bronchi and blood-vessels. The whole cavity filled with dirty grayish fluid, containing many larger or smaller soft yellow masses. Lower lobe edematous. The abscess cavity of the upper lobe extended a short distance into the lower and beneath this for a short distance was a grayish, granular, irregular, solidified area. A probe passed into bronchus in upper lobe entered at several points into the cavity through small openings. In the lower wall of the cavity were small pockets of thick yellow pus.

Spleen enlarged, with fibrous adhesions to the diaphragm.

In this case, despite the absence of physical signs during life of the abscess, the marked local *tenderness* should have suggested it. I am inclined to think this symptom is of considerable value in the diagnosis of abscess.

CASE VI. W. H., stoker, age twenty-eight. (Service of Dr. Withington.)

September 25, 1895. Sick ten months with cough.

Many hemorrhages last winter. Much expectoration, green. Copious hemorrhages last two weeks; finally one so severe that he was brought in by the police.

No formal physical examination was made on account of the hemorrhages. Stethoscope shows râles at both apices. Temperature 105°.

Died September 28th.

Autopsy by medical examiner showed gangrene of greater part of the right lung. The sequence was thought to be pneumonia, abscess, gangrene.

CASE VII. J. H., roofer, age sixty-seven. (Service of Dr. V. Y. Bowditch.)

March 14, 1896. Cough for two or three years, with considerable expectoration, sometimes bloody. Worked till four weeks ago. Since then cough has been worse, with abundant purulent expectoration, rapid emaciation, difficulty in swallowing, pain in chest, back of neck and throat; dyspnea.

Patient moribund on entrance. Sputa greenish, very foul. Resonance poor over both fronts. Under right clavicle, over area two and a half inches in diameter, breathing amphoric, and at times almost metallic.

Died soon after entrance.

Autopsy.—Pleura on both sides show many fine adhesions easily separated. Right pleura greatly thickened over upper lobe. Whole right upper lobe taken up by a cavity which was separated from pleura by thin wall only. This cavity contained much thick, foul-smelling, muddy fluid, with small pieces of detached gangrenous lung substance. The walls of the cavity were rough, with irregular softened masses of lung substance projecting into it. Other portions of the left lung normal. Large amount of pigment.

Acute vegetative endocarditis.

Bacteriology: A cover-slip from the cavity in the right lobe showed numerous large and small bacilli and cocci. Cultures: diffuse, transparent, stringy growth—large bacilli faintly staining, rods, cocci, bacilli surrounded by a definite capsule. Pure culture from the lung was injected into a guinea-pig at 12 M. The animal was found dead at 7 A. M. following. Cover-slips from its peritoneal fluid showed numerous capsulated bacilli, the same as in the pure culture. The same also in cover-slips from heart's blood and spleen.

CASE VIII. W. J., mulatto, age twenty-seven, asphalt worker (has worked much nights by gasolene flambeaux in the subway). (Service of Dr. Withington.)

May 6, 1897. Cough six months. Lost 20 pounds in weight; white expectoration. One week ago, chill for one hour. Pain across front of chest, worse on right, especially in axilla. Expectoration became black; no blood. Temperature 101°.

Heart area increased, both right and left. Dulness in right back at mid-scapula. Bronchial breathing and voice. Numerous coarse and fine moist râles. Sputum abundant, inky-black, very foul. No tubercle bacilli found.

May 10th. Coughing excessive, causing much abdominal pain. Amphoric breathing in middle and upper right back. Aspirator needle introduced into this cavity withdraws the same inky, fetid fluid which he expectorates.

May 14th. Transferred to the surgical side for operation; but his condition became too bad to admit of it, and he died before evening.

Autopsy.—There was a rupture of both recti muscles at their lower part, with considerable hemorrhage, caused evidently by the violence of the cough. The muscle-fibres showed Zenker's degeneration.

Pleural cavities both completely obliterated. Lungs and lymphatic glands over pericardium intensely black (anthracosis). Left lung: pleura thickened; on section lung tissue very dense, with some fairly large solidified areas; no caseation. Right lung: upper lobe almost entirely disappeared, leaving large cavity through which ran numerous trabeculae of blood-vessels and bronchi. It contained thin, inky fluid, but no lung tissue was left; middle and lower lobes distended and solidified; on section smooth, intensely black. The bronchial glands and

the retro-peritoneal glands to two inches below the celiac axis were strongly pigmented.

Spleen enlarged.

Cultures from the heart and liver were sterile; from spleen, colon bacilli; from kidney, streptococcus, pneumococcus, colon bacilli; from lungs, pneumococcus and streptococcus; and from the gangrenous cavity, a great variety of other organisms.

This case is of interest from the intense anthracosis. The man had had a cough for months, and the autopsy showed no tuberculosis. There was acute pneumonia, followed apparently directly by gangrene, without the intervention of any abscess. Although he was an athletic fellow, the recti muscles showed degenerative changes and the violence of the cough had ruptured the bellies of both recti completely across.

Of the remaining cases in this series it is, of course, impossible to speak in detail. A study of them, however, warrants the following deductions:

Of the 36 cases, the large majority were males (80 per cent.).

The patients were mostly in mid-life, a large majority being between twenty and forty-five years of age. The youngest was nine and the eldest sixty-seven.

The distribution of the lesion, so far as determined, was as follows:

Right upper lobe in	7 cases.
Left upper lobe in	2 cases.
Right lower lobe in	6 cases.
Left lower lobe in	15 cases.

In five patients the distribution was multiple, the lesions occupying more than one lobe, usually of the same lung. In two or more cases they were distributed through both lungs.

ETIOLOGY.

The histories of these cases show that in eight of them phthisis was a probable antecedent of the gangrene, and in sixteen, pneumonia. In a few cases both phthisis and pneumonia undoubtedly existed. In the four cases of recovery the antecedent disease was pneumonia.

Diphtheria.

CASE IX. A. S. (Service of Dr. Mason.)

February 13, 1894. History of pneumonia from February 6th. Flatness below the fourth rib. Patient developed diphtheria February 26th and having recovered, was retransferred from the contagious ward March 10th. There was then dulness over left upper lobe, with fine râles at the base of the left axilla; tubular breathing. An aspirator brought pus, which showed chiefly putrefactive bacteria. No tubercle bacilli. Transferred to surgical side for operation.

March 19th. Sixth rib excised. A cavity in lower lobe of left lung was found, three inches deep. From this three ounces of blood and cheesy pus was removed.

Patient died March 23d.

Other possible etiological factors included —

Suppuration.

The most marked case of this was in a woman in my own service who had had ulceration of the upper teeth with great swelling of the face. After suffering in this way for five weeks with marked vomiting and prostration she had the teeth extracted. Five days later she developed pneumonia, and later gangrene of the right lower lobe. The gums were still actively suppurating during this time. After three weeks of severe illness she recovered.

Another patient had a perineal section June 5th,

which was followed about July 1st by fetid empyema. This was operated upon, and later signs of pulmonary consolidation and then gangrene appeared in the left lower back.

A third patient had gangrene developing about two months after a septic foot. Unfortunately, the duration of the suppuration of the foot is not given, so that its connection with the pulmonary gangrene is not certain.

External Trauma.

A patient was struck in the side by a heavy quarter of beef, and from that time was not well. There was a stitch in that side on breathing. Three weeks after, on entering the hospital he showed consolidation and gangrene on the same side, and died in two weeks.

MODES OF EXTENSION OF THE GANGRENE.

I take leave to cite two cases which illustrate in an interesting manner the extension which the suppurative or gangrenous process may take if the patient's life be sufficiently prolonged. In the first of the two the extension was peripheral, in the second peripheral and also central.

CASE X. Pneumonia, abscess, gangrene, pyo-pneumothorax, gangrenous cellulitis. (Service of Dr. Withington.)

T. S., age fifty-four, laborer, entered the hospital May 25, 1897. Had had bronchitis for years; one month ago pneumonia, from which he did not recover. For last two weeks has lost ground steadily. During the last week fetid expectoration and delirium. Temperature 103°, pulse 120.

A long narrow tumor occupied the left back, extending from the top of the thorax somewhat below the last rib and some six inches in width. It both fluctuated and crepitated. Over the upper portion the cracked-pot sound was heard on percussion. Succussion present.

On introducing a needle, fetid pus began to flow as soon as the point reached the subcutaneous tissue. As the man's condition was too grave for formal operation, one of the surgeons at my request made a long vertical incision without moving the patient from bed. This was followed by a copious gush of serum and very fetid pus. The finger introduced through this incision came upon much disorganized tissue and also felt two ragged holes between the ribs near the spine of the scapula through which evidently the gangrenous pus, having first infected the pleura, had then burst out of the thorax.

The operation failed to give any relief, the patient continued cyanotic and delirious, and died in about four hours.

The pathologist reported upon the pus, that it contained pneumococcus, streptococcus and staphylococcus pyogenes albus. The supervention of gangrene upon abscess was sufficiently evident.

CASE XI. D. S., male, age forty-one. (Service of Dr. Doe.)

May 3, 1880. Had been sick three weeks. Pain in left chest, cough, fever. Sputum abundant, of gangrenous odor. Signs of consolidation in lower half of left back, with crepitation in left axilla. Later signs of fluid at left base.

May 17th. Aspirated 15 ounces of pus with blood, odor of H₂S.

May 22d. Again aspirated, 11 ounces of pus, having typical odor of gangrene.

May 31st. A third aspiration, of one ounce of very offensive pus. Cavity injected with carbolic solution (1-80), which comes out of mouth.

June 1st. Sputum bloody-purulent, with odor of carbolic acid. For the next four days no gangrenous odor.

June 9th. Aspirated one ounce of pus from below

angle of scapula; needle inserted in axilla entered consolidated lung.

June 28th. Patient discharged, "well."

The sequence of events here was apparently pneumonia, gangrene communicating with a bronchus, then extending peripherally, local pleurisy, fetid empyema. Free communication was shown by the aspirating needle from the pleura through lung, bronchus and trachea to mouth. The gangrenous focus was apparently drained chiefly inward.

PROGNOSIS.

In this series of cases, four, or 11 per cent., were discharged as "well"; and if we assume that two of the cases discharged as "relieved" were likely to recover (as seems probable), the total recoveries are 16 per cent. Wilson Fox, in his great work, says he has seen but one case recover. But the figures which he quotes from other authorities correspond pretty well with those of our cases. Lawrence had seen eight cases recover out of 68, and Lebert six out of 32. Leyden reports seven recoveries in eight cases!

TREATMENT.

Most of these patients were given supporting treatment, combined in many instances with creosote inhalations. In my own cases I confess to seeing little gain from antiseptic inhalations, though writers generally recommend them.

If the mouth is, as seems probable, the source of the saprophytic organisms which are the direct cause of gangrene, the careful use of antiseptic mouth-washes would seem to be an important feature, both in the prevention and treatment of the disease.

Guaiacol has received favorable attention as a pulmonary antiseptic. Various French writers, among them Plique⁴ and Lop,⁵ recommend its use in pulmonary gangrene by injection. A solution of equal parts of guaiacol and oil of sweet almonds sterilized at 100° C. is employed, and two grammes are injected from one to four times daily.

These injections are usually made subcutaneously, but have also been made locally. Their employment directly in the gangrenous focus has been recommended by several authors, by whom other antiseptic agents have also been used. Similar injections have also been thrown in between the tracheal rings, but this procedure is too dangerous to be recommended. Lop reports three recoveries under the subcutaneous use of the guaiacol mixture.

Richardière⁶ advocates the conjoint use of guaiacol and oxygen, a solution of the former being put in a wash-bottle and oxygen passed through it prior to being inhaled. Two cases of recovery are reported, neither of them, however, so severe as to give great assurance of the curative value of the medicament in serious cases.

The surgical treatment of pulmonary gangrene (as of abscess) offers very varying degrees of difficulty, according to the relation of the gangrenous focus to the pleura, or more definitely, according as the pleura has, or has not, been the site of such a local inflammation as has by adhesions shut off the portion overlying the diseased focus from the general pleural cavity. In other words, the conditions are similar to those affect-

ing pelvic and abdominal abscess with relation to the general peritoneal cavity. The surgical prognosis, therefore, varies in the three following classes of cases:

(1) If a general infection of the pleura has taken place, one has to do with an universal fetid empyema, which increases the gravity of the prognosis, but which leaves no doubt as to the surgeon's duty of opening and fully draining the pleural cavity as well as of trying to establish free communication with the intrapulmonary gangrenous focus.

(2) If, on the other hand, the pleura has formed adhesions over the part of the lung affected, we have the most favorable condition possible, and through this encapsulated or adherent portion of the pleura drainage of the gangrenous lung can be effected with some hope of cure. It is probable that most of the cases of cure by pneumotomy come in this category.

(3) A third and much graver condition is that where a focus of gangrene exists wholly within the lung and without any adhesive inflammation of the pleura covering it. Here the operation of opening the pleura causes prompt collapse of the lung, the diseased portion draws away from the parietes and a cleft of such size is formed that (a) drainage of the cavity is difficult, and (b) general infection of the pleura is certain.

Of the cases in our present series only four were operated upon. In the first the lung was adherent to the pleura at the seat of the operation but no pus was found. Patient died two days later. In the second (see Case IX) blood and pus were removed from a cavity in the lower lobe three inches deep, and the patient died on the fourth day. Particulars of the state of the pleura are not given.

Another case, which is fairly typical of the third class of conditions above referred to as especially unfavorable (a focus wholly within the lung with no adhesive pleurisy over it), is as follows:

CASE XII. A. D., age fourteen, bootblack.

Sick one month, in bed eight days. Left chest shows flatness below angle of scapula. Above this an area of tympanitic resonance, which changes position with movement of patient. Absence of fremitus, resonance and inspiration. Temperature 101°. Breath very offensive. Sputum abundant, brown, a cupful at a time—consistency of cream, fetid. Attacks ushered in by cough, followed by much prostration. Transferred to surgical side for operation.

Diagnosis on medical side, "abscess"; on surgical side, "gangrene."

Operation June 22, 1891, by Dr. Gay. Incision in post-axillary line, three inches, at right angle to ribs, from seventh to ninth. Incision at eighth interspace into chest. No pus found at first; but the probe being passed upwards reached pus, brownish-gray, very foul and in large quantity. Probe entered seven inches into an abscess cavity of the lung. Cavity irrigated with corrosive solution (1-5,000), followed by boric acid (two per cent., hot), double drainage-tube, iodoform gauze, daily dressing.

July 1st. Temperature began to rise, especially evenings. Expectoration foul, profuse; cough frequent.

July 6th. Died.

The fourth case, and the only one which recovered after operation, was not a pneumotomy, but really an empyema operation. The sputum was not offensive, the abscess of the pleura was shut off from the general cavity, and on irrigation of it some of the fluid introduced was coughed up, causing considerable strangling of the patient and demonstrating that there was pulmonary abscess communicating with that of the pleura.

These operative results are not so encouraging as

⁴ Gazette Med. de Paris, 1895, II, p. 411.

⁵ Gazette des Hôpitaux, Paris, 1893, LXVI, p. 249.

⁶ L'Union Médicale, August 10, 1896.

some writers lead us to expect. For instance, Lop¹ had in 12 cases of pneumotomy seven recoveries: three were relieved and two died. In 31 cases which he collected, 17 were cured. The indications which this author gives for operation in gangrene are:

(1) Two weeks of medical treatment including guaiacol injections, etc., without relief.

(2) Where auscultation shows a definite cavity.

(3) Where the gangrenous focus shows evidence of being covered by pleural adhesions and its seat is such as to be accessible.

Now it is just the difficulty of demonstrating that the pleura is adherent around the point of the intended opening which constitutes the source of doubt and danger.

Krause² advises, in case the pleura is found not to be adherent, a double operation: (1) resection of the necessary ribs and the establishment of adhesions either by stitching the pleura, packing with iodoform gauze, the use of the Paquelin cautery or other means; (2) after waiting five or more days till the pleural cavity is shut off, the gangrenous cavity is opened and drained. The difficulty with this deliberate procedure is that it presupposes that the patient's condition is not one of great urgency. Unfortunately, before five days there is quite a chance that the patient will be forever free of any need of further operation.

I close with what seems to me a needed word of caution as to the use of the aspirating needle in this class of cases. The comparative safety with which exploratory punctures may be made in the various cavities of the body may lead us to forget what may happen if the needle is plunged into a gangrenous or suppurating cavity of the lung, the pleura being sound and not adherent. Is not the withdrawal of the needle, charged with putrid matter, likely to inoculate the pleural cavity as it passes through it, and so produce that much to be dreaded complication, a general fetid empyema?

A STUDY OF THIRTY-SEVEN FATAL CASES OF CIRRHOSIS OF THE LIVER.¹

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CONSIDERABLE confusion exists not only pathologically and etiologically but also clinically as to the classification of cirrhosis of the liver. The cases may, in a general way, be divided into two main classes, according as the size of the liver is diminished or increased. The first is usually spoken of as atrophic; the second as cirrhosis with enlargement or hypertrophic. Both are the result of an abnormal development of connective tissue; in one case contraction being a prominent feature, in the other not. In both also various changes of greater or less extent, probably secondary in origin, occur in the liver cells. The former conception of atrophic cirrhosis with its attendant symptoms as a result of the overgrowth of the connective tissue of the portal system only, and of hypertrophic as the result of that of the biliary system only, cannot now be accepted but in a greatly modified

form, as the process is always a more complex one. The division into interlobular and intralobular forms is also indefinite as both conditions invariably occur together.

The great majority of the contracted livers are probably due to alcohol, although a certain number are the result of the same agents which produce the large livers or of other influences at present unknown. Hanot's classification of cirrhosis with enlargement from the standpoint of etiology is perhaps as satisfactory as any: malarial, syphilitic, tuberculous, biliary from retention, alcoholic, fatty alcoholic, and finally, perhaps belonging in a separate class, the hypertrophic cirrhosis with chronic icterus.

While there is a pretty general agreement among medical writers as to the symptomatology of the ordinary forms of cirrhosis with contraction and cirrhosis with enlargement there seems to be considerable confusion regarding that of the form described by Hanot as hypertrophic cirrhosis with chronic icterus. In fact, many writers doubt even the existence of such a form. Hence, it may be well to give briefly Hanot's own description. It usually occurs in young and feeble men, beginning with an attack of pain in the right hypochondrium, associated with symptoms of disturbed digestion. This is soon followed by jaundice, which is persistent and gradually increases. Crises of pain and indigestion occur at intervals, but at other times there are no symptoms. Enlargement of both liver and spleen begins early, and is progressive, both becoming enormous. There is no ascites or venous enlargement, and the feces remain of normal color. The nutrition is maintained unimpaired for a long time, cachexia rarely appearing under four years. The course is from two to twelve years, more often the longer period. The cause is obscure, although alcohol, syphilis, malaria and lithiasis have seemed of etiologic importance in some cases.

It was with the hope that something of interest might be learned concerning the etiology and symptomatology of these somewhat obscure conditions that this study was undertaken, and the medical records of the Boston City Hospital for the seventeen years ending with 1896 investigated. During this period 50,347 cases, exclusive of diphtheria and scarlet fever, were admitted to the medical wards. In 333 of these, or .66 per cent., the diagnosis of cirrhosis of the liver, either as the principal or as a complicating condition, was made. In the nearly 2,000 autopsies made on medical cases, exclusive of diphtheria and scarlet fever, during this same period, the clinical diagnosis of cirrhosis of the liver was confirmed in thirty-seven. On account of the difficulty in the diagnosis of this condition, and of the uncertainty inherent in all diagnoses unconfirmed by post-mortem examination, it seemed best to study only the autopsied cases.

For convenience of comparison they have been divided into three classes, according to the size of the liver as determined at autopsy. The first comprises the livers larger than normal, the second those of a size within normal limits, and the third those smaller than normal. It is possible that those of normal size should be considered with the small ones rather than in a class by themselves. It may be of interest to note that clinically the increased size of the liver was always recognized, and that its irregularity was occasionally noted. The livers of normal size, however, were usually considered large, while the diminution in

¹ Reprinted from Medical and Surgical Reports of the Boston City Hospital, 1897.

² Loc. cit.

³ Berliner klin. Woch., April 22, 1895.

size was recognized in about half the cases. The pathological data are, unfortunately, nearly all microscopic and of little use except in establishing the diagnosis of an increase of connective tissue with greater or less destruction of liver tissue and increase of fat. Chronic perihepatitis was noted in one of the large livers, in four of those of normal size, and in three of the small. The following table shows some interesting general points: It appears from this table that cirrhosis with enlargement, without change in size and with diminution in size, are equally frequent, and that the size of the liver is increased in a third of the cases. The male sex is more frequently affected. Cirrhosis with enlargement is more common in younger people, and cirrhosis with atrophy in old. The average duration of symptoms is longer in the atrophic cases. The duration of symptoms, however, varies within wide limits in all varieties. Hemorrhage is a not infrequent cause of death in all forms, and a fatal hemorrhage may be the first symptom even in the hypertrophic form. An alcoholic history was obtained in every case in which the subject was investigated. A history of previous malaria, syphilis or gall-stones was occasionally obtained, but in none did it seem of etiologic importance.

hepatic enlargement as in the others, in which it was sometimes the first symptom noted. In all forms, however, it was, as a rule, rather a late symptom. Jaundice occurred, sooner or later, in more than half of all the cases; more often, however, in the cases with hypertrophy, in which it also, as a rule, occurred earlier and lasted longer. In the hypertrophic form it often occurred in cases in which ascites never developed, rarely without ascites in the others. It sometimes preceded ascites, especially in the cases with enlargement, but more often followed it. The abdominal veins were dilated in somewhat less than half of all the cases; proportionately more in the hypertrophic form. Hemorrhages from the alimentary tract occurred in about one-quarter of the cases, but were less common in the cases with enlargement. Indigestion was more or less troublesome in all forms, being one of the earliest and most persistent symptoms. The nutrition was retained practically unimpaired in all the cases with hepatic enlargement and in about three-quarters of the others.

The inconstancy of the symptoms and the irregularity of their development, both absolutely and relatively, is most striking. In comparison with the others the cases with hepatic enlargement maintained their

	LARGE LIVERS.	NORMAL-SIZED LIVERS.	SMALL LIVERS.
Number of cases	13	11	13
Average age at death	40	52	49
Sex	Males 9 Females 4	Males 6 Females 5	Males 8 Females 5
Average duration from first symptom in cases in which death not due to complication ¹	In eight cases . . 14 mos. Shortest 8 " Longest 30 "	In six cases . . . 9 mos. Shortest 3 " Longest 24 "	In ten cases . . . 25 mos. Shortest 3 " Longest 72 "
Cause of death	Stress of disease . . . 10 Hemorrhage 1 Complications 2	Stress of disease . . . 8 Hemorrhage 2 Edema of brain 1	Stress of disease . . . 9 Hemorrhage 2 Complications 2
Cause of disease	Alcoholic history . . . 13 No data as to alcohol . 0 History of syphilis in 1 and gall-stones in 2. Gall-stones not of importance as ducts free.	Alcoholic history . . . 6 No data as to alcohol . 5 History of syphilis . . 1 " " malaria 1 (Non-alcoholic cases.)	Alcoholic history . . . 11 No data as to alcohol . 2 History of malaria . . 2 (Both alcoholic cases.)

¹ In one each of the large and normal classes a fatal hemorrhage was the first symptom.

In the following table the individual symptoms and their relative frequency in the different classes are considered. As complete data were often wanting in the records it seemed best to also compare percentages made up only from the cases in which the data were complete.

Among other symptoms pain in the region of the liver was mentioned two or three times in each class, but tenderness was never noted. Swelling of the feet and dyspnea were very common early symptoms in all forms, often preceding any others by months. Late in the disease anasarca and accumulations of fluid in the various serous cavities often developed. Delirium or coma, and in one case convulsions, often preceded for a few weeks the fatal termination. The brain was examined in several of these cases, and nothing abnormal found except in one case where there was edema. The brain in the case of convulsions was normal. There seemed, however, to be rather a definite relation between the nervous symptoms and jaundice.

An analysis of this table shows the following facts: Ascites was about half as frequent in the cases with

nutrition better, had jaundice more frequently and earlier, developed ascites less often and later, and were less subject to hemorrhage. It is to be noted that none of the cases resembled in their symptomatology the hypertrophic cirrhosis with chronic icterus of Hanot.

The size and condition of the spleen seems worthy of special attention. It was of normal size in one and enlarged in twelve of the cases with hepatic enlargement; normal in two, and enlarged in nine of the normal-sized livers; normal in three, and enlarged in ten of the atrophic form. The maximum weights were respectively 1,200, 600 and 1,200 grammes. No relation was evident in any form between the size of the spleen and the duration of the symptoms or the amount or duration of the ascites. Three of the cases with hepatic atrophy with marked ascites showed no splenic enlargement. On the other hand, some of the largest spleens were found in cases in which there was no ascites. Moreover, the spleen was enlarged in most and of increased density in all of the cases in which death occurred early from complications. Unfortu-

nately, no microscopic examinations of the spleens were made. The condition was often described as passive congestion, and sometimes as a hyperplasia of the pulp. Chronic perisplenitis was present in four of the first, three of the second and six of the third class.

The early development of splenic enlargement and the apparent independence of ascites and splenic enlargement of each other seem to suggest some other or additional cause for the enlargement than portal congestion. This discrepancy has already been noted by Oestreich who, after a careful study of the clinical histories, autopsies and microscopical examinations of the livers and spleens of early and late cases of cirrhosis, comes to the conclusion that "the existence of the splenic tumor in cirrhosis of the liver is independent of the liver and due to irritative processes." The irritant is the same as that which causes the diseased process in the liver.

SYMPTOMS.	LARGE—13		NORMAL—11		SMALL—13		TOTAL—37	
	Absolute Number.	Percentage.	Absolute Number.	Percentage.	Absolute Number.	Percentage.	Absolute Number.	Percentage.
Ascites —								
Present in	5	39	8	73	10	77	23	62
Av'ge duration	5 mos	..	6 mos	..	4 mos	..	5 mos	..
Shortest "	1 mo	..	5 wks	..	3 wks	..	..	..
Longest "	1 yr	..	2 yrs	..	1 yr	..	..	..
First symptom	0	..	4	36	1	8	5	14
Jaundice ¹ —								
Present in	9	69	5	45	8*	61	22	59
Av'ge duration	5 mos	..	2 mos	..	3 mos*	..	..	..
First symptom	1	8	0	..	0	..	1	3
Without ascites	4	31	0	..	2	15	6	16
Preceded "	2	15	0	..	1	8	3	8
Followed "	3	23	5	45	5	39	13	35
Large veins —								
Present in	3	60	1	17	4	31	8	40
Abdominal	3	..	1	..	3	..	..	..
Hemorrhoidal	1	..	1	..	1	..	..	..
Hemorrhage ⁴	2	15	3	27	3	23	8	22
Vomitus	2	..	3	..	2	..	7	..
Stools	1	..	3	..	3	..	7	..
Indigestion	6	75	7	100	7	89	20	87
Slight	2	..	3	..	2	..	..	..
Moderate	2	..	1	..	3	..	..	..
Marked	2	..	2	..	1	..	..	..
Av'ge duration	7 mos	..	5 mos	..	6 mos	..	..	..
First symptom	3	37	1	14	1	13	5	25
Nutrition — Good	12	100	7	70	9	75	28	82
Poor	0	..	3	30	3	25	6	18

¹ Clay-colored stools in two of large and one of normal class.

² In four of these cases it was noted that the bile-ducts were patent.

³ In several others at intervals for two to six years.

⁴ Source of hemorrhage was esophageal veins in two; duodenal in one, ileal in one, and hemorrhoidal in one.

The associated chronic complications in the other organs were as follows:

Complications.	Large. 13	Normal. 11	Small. 13	Total. 37
Heart — Hypertrophy left ventricle.	3	3	3	9
Fatty degeneration.	2	3	..	5
Fibrous myocarditis.	1	..	..	1
Chronic fibrous pericarditis.	1	1	1	3
Arteries — Chronic endoarteritis.	3	4	4	11
Lungs — Tuberculosis, active.	..	..	2	2
Healed.	..	2	1	3
Chronic bronchitis.	..	2	1	3
Pleura — Acute fibrinous pleurisy.	..	..	1	1
Chronic adhesive pleurisy.	2	2	4	8
Gastro-intestinal canal — Chronic passive congestion.	2	1	..	3
Chronic gastric catarrh.	1	1	1	3
Dilation of esophageal veins.	1	..	1	2
Dilatation of duodenal veins.	1	..	..	1
Peritoneum — Chronic peritonitis.	..	2	1	3
Pancreas — Chronic interstitial pancreatitis.	..	..	1	1
Kidneys — Passive congestion.	3	1	3	7
Chronic diffuse nephritis.	3	2	1	6
Chronic interstitial nephritis.	2	4	3	9

These figures agree in a general way with those of Lange, based on a considerably larger number of cases. They show, as do his, a marked tendency to interstitial changes in the serous membranes, kidneys and general arterial system. They are presumably due to the same cause as those in the liver and spleen. The pathological changes in the gastro-enteric tract are surprisingly small for a disease in which portal congestion is supposed to play so large a part.

The preceding statistics justify to a certain extent the following conclusions: Cirrhosis of the liver is a comparatively rare disease. It is the result, in the vast majority of cases, of the abuse of alcohol. Alcohol may cause either an increase or a diminution in the size of the liver. Both are due to the abnormal development of connective tissue. Why hypertrophy results in one case and atrophy in another is at present unknown. All forms have the same symptoms. There is no regularity in the relative development of these symptoms. The sequence, however, varies to a certain extent in the different forms. Portal congestion plays a less important part in the development of these symptoms than is generally supposed. Many of the associated lesions are of the same nature as those in the liver, and are due to the same cause.

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THE FORCIBLE CORRECTION OF THE DEFORMITY IN POTT'S DISEASE.

A REVIEW OF THE RECENT LITERATURE.

BY ROBERT W. LOVETT, M.D., BOSTON.

THE forcible rectification of the deformity of the spine in Pott's disease is a subject which in France and Germany is awakening the widest interest. It has hardly found its way into American or English literature yet to any extent, partly because it is all so recent and partly because each one hesitates to approach the subject in a critical way on the facts so far presented. The method is essentially one which requires the lapse of a considerable amount of time for the estimation of its real value.

The method proposed is this: the patient is anesthetized, and lying on his face is forcibly pulled upon by one assistant on each arm and leg while the surgeon leaning over him presses down upon the deformity until it yields or he sees fit to desist. The patient is then laid on his back on a padded board or enveloped in plaster from his head to his pelvis, for some months. It is claimed by some writers that permanent improvement and almost cure of the deformity may be obtained in this way.

We are taught, and analogy would lead us to believe, that traumatism to bones or joints affected by tuberculous disease renders the tissues more vulnerable to the inroads of the bacillus and the general system more likely to be affected by generalization of the tuberculosis. The forcible tearing of tuberculous bone tissue has been again and again demonstrated to be risky and attended often by meningitis or general tuberculosis. For example, in 27 cases of the forcible rectification of the deformity in hip disease recently reported by Raymond Sainton,¹ five developed fatal meningitis within two or three months of operation.

Objections on practical and theoretical grounds instantly occur:

(1) Pott's disease is a tuberculosis of bone, of the bodies of the vertebræ, and the deformity is secondary and is an incident. It has been regarded as in a measure conservative and as Nature's preliminary to arresting the disease. The essential is vertebral tuberculosis, not deformity of the spine. Were the treatment proposed the eradication of the disease, it would place it on a different plane; but the measure deals only with a symptom and a result which is of itself distressing, and sometimes disabling but which is on the whole fairly well controlled by early and efficient treatment. Other things being equal it is, of course, most desirable to improve or obliterate the deformity; but the essential of any rational treatment is first to cure the disease.

(2) The question of the occurrence of bony repair to fill in the gap caused by the tearing apart of the bodies of the vertebræ is, of course, an essential one. If there is to be no bony repair the operation is useless. It is asserted (Ménard)² that in Pott's disease bony repair occurs, not in the bodies of the vertebral

column, but at the sides and back. But Regnault³ quotes a specimen in the Musée Dupuytren, where a gap exists in a diseased column, but the column is stable. One must remember, as shown by experiments on the cadaver,⁴ after rectification, that the gap to be filled may measure two to six centimetres or more. No pathological evidence beyond the specimen of Regnault has been adduced to show that bony repair of the vertebral column of a character likely to support weight is likely to occur. Chipault, the modern originator of the method of forcible correction, and the predecessor of Calot, who seems to have reaped the glory, lays much stress upon ligature of the spinous processes in Pott's disease; not only does he ligature them after forcible correction, but as a routine method of treatment of Pott's disease in children even before the occurrence of deformity he advises "ligature by a silver wire of the spinous apophyses corresponding to the diseased region, a ligature followed by immobilization."⁵ A stout silver wire is twisted from one spinous process to another, so as to embrace and steady the whole area affected. After forcible correction Chipault has either wired the spinous processes together or has clamped the laminae together by an appliance somewhat like Malgaigne's patella hooks. A column supported in this way has, he says, double the strength of the intact column. Upon this ligature Chipault insists as one of the essentials, not only of forcible correction but of all treatment of Pott's disease in the active stage.⁶ Relapse, without this is, he says, most likely to occur.

Calot claims that bony tissue fills up the gap caused by the separation of the vertebral surfaces on the ground that radiographs show it, instancing one where there were seen two beams of bone stretched across the gap after an interval of three and a half months, eight to ten millimetres thick and two centimetres long. Again, he says that where the operation is done in two stages, weeks or months apart, distinct snaps of bony tissue are felt at the second redressement.

Ducroquet has brought forward radiographs which are said to show bony repair of the gap in the vertebral bodies.⁶

The reproductions of these radiographs in his article⁷ is far from satisfying one that these statements are warranted by them. The general opinion is that the question of bony repair of the gap in the vertebræ must be regarded for the present as wholly *sub judice*. Such a process is not in line with the general behavior of bone when affected by tuberculosis and disturbed by traumatism. It cannot be dismissed as impossible, nor can it yet be accepted as proved to have occurred after the forcible correction in Pott's disease. If bony repair of the gap does not occur the operation is of questionable ultimate utility unless the spinous processes are wired, as advised by Chipault. Among those who have reported relapses are Pean, Phocas, Tausch and Lorenz⁸ and Vincent.⁹

(3) One would suppose that such operations must be attended by risk to life, but the reported casualties are surprisingly few. The cord and membranes in ex-

¹ Comptes rend. de Soc. de Biol., 1897, 10, s. iv, 793.

² Chipault: Du Mal de Pott, Paris, 1897, p. 2.

³ Chipault: Gaz. d'Hôp., 1897, 21, 197; Presse Med. de Paris, 1897, 240; Gaz. d'Hôp., 1897, 1xx, 900.

⁴ Ducroquet: Cout. à l'étude de la consolidations du radius, etc. Communication to Twelfth International Congress, Section of Surgery.

⁵ Calot: Arch. Prov. de Chir., 1897, vi, 66; Rev. de Ther. Méd. Chir., 1897, lxi, 573.

⁶ Deutsche med. Woch., xxv., 556.

⁷ Lyon Med., 27, 323.

¹ Revue d'Orthopédie, July, 1897.

² Gaz. Med. de Paris, 1897, 10, s. 1, 231.

periments on the cadaver have not shown signs of injury. Ménard¹⁰ in correcting the deformity on the cadaver ruptured a prevertebral abscess which would have found its way into the mediastinum during life. Lorenz¹¹ speaks of a case where an operation was undertaken to arrest a threatened paraplegia; permanent paralysis immediately followed of a severe type.

In addition to these dangers, hemorrhage, opening up of tuberculous foci, injury to intrathoracic vessels, etc., are advanced as theoretical possibilities. It is obvious that in old cases where union has occurred fracture of the spine will result from attempts at correction sufficiently forcible. Such an accident is reported by Malherbe,¹² where a deformity has existed for eight years in a patient twelve and a half years old.

The results quoted are surprisingly good.

Calot comes first with 204 forcible corrections. There were no accidents, no deaths on the table. Two children died inside of three months, one of bronchopneumonia and one of meningitis. In eight cases of paralysis, six cures resulted within eight days. In one case partial paralysis came on some days after correction. Twenty of his operated cases walk already; but his end results are too recent to be worthy of serious consideration. He states that the x-ray shows the process of repair to be finished five to ten months after operation, sometimes requiring fifteen months. The criticism of Calot's figures made by M. Monod¹³ seems reasonable. In a critical report of the papers of Chipault, Calot and Ménard he made the statement that the statistics of Calot were too good, and for that reason would not carry weight. On the other hand, it must be remembered that Calot operates at Berck-sur-Mer under the most favorable hygienic conditions; and, as one of his critics said, could venture on things unsafe in cities.

Chipault has operated for four years. He says there are many relapses, and that unless the apophyses are fastened together, practically all will relapse.

In England, Jones and Tubbey¹⁴ have done 11 reductions. In six they obtained immediate and complete rectifications, in five only partial.

Lorenz has been already quoted with one case of paralysis, and at the same time relapse of the deformity.

Jonnesco¹⁵ reported three deaths in 13 reductions, one from chloroform, one death unexplained by autopsy forty-eight hours after reduction, and one death from broncho-pneumonia after eight days. Most of the series of cases are, however, much more favorable.

As far as figures go to show immediate dangers, one must admit that if representative cases are reported, the immediate results are altogether more favorable than could have been predicted on theoretical grounds.

The limit of applicability is indefinite. Cases of three and four years' duration have been often corrected, and adults and children have yielded equally good results. Calot makes in doubtful cases traction of 40 to 80 kilogrammes; and if there is no yielding, he stops. Very old cases are obviously unfit for such operation. In two such cases, however, Calot has done a cuneiform resection of the posterior parts of the vertebræ and has thus accomplished reduction. This method, of course, diminishes the chest capacity markedly.

The technique is simple, the patient lies prone and is pulled apart by strong assistants pulling on the legs and arms so as to distract the vertebræ at the seat of disease. Jeannel,¹⁶ of Toulouse, and Vulpis,¹⁷ of Heidelberg, use pulleys and bands for distraction in place of assistants, and the latter advocates suspension by the heels as the most available position for correction, and the application of the jacket. Calot advises, as the first step of the operation, the removal of the spinous processes of the diseased vertebræ through a longitudinal incision which is at once sewed up. This is advocated on the ground that pressure can then be made by the flat of the hand in rectifying the deformity, which is more accurate than pressure on each side of the spines; and it is said that sloughs are much less likely to form under the jacket.¹⁸ On the other hand, it is claimed that the removal of the spinous processes weakens the already diseased and unstable column.

Traction of 20 to 80 kilos is made by Calot, according to circumstances, and then the surgeon standing over the patient presses downward on the boss with short jerks, exerting a pressure from 15 to 40 kilos. The deformity generally yields with a succession of snaps or suddenly and easily. The patient is then held with the spine overextended while a plaster cuirass is applied reaching from the top of the head to below the pelvis. This is changed every three or four months.

Sloughs are likely to occur, especially on the occiput and over the boss. Recumbency of some months is advised, and the indication, according to Calot, for the upright position unsupported is afforded by the x-ray, which shows the formation of bone. All this seems to the American reader very indefinite and vague.

Chipault lays the patient, after operation, on an elaborately arranged board for hyperextending the spine.

Such is the literature as it stands. Lorenz and Ménard are the chief critics; Chipault, the real reviver of the method, is conservative and cautious; Monod is judicial and sceptical; the majority are enthusiastic. Theoretical objections are all very well; but every new operative method has had to meet them at the outset, and either disprove them or be itself discredited.

The operation attacks, not Pott's disease, but the deformity of Pott's disease, which is not the worst feature of the affection. It expects of tuberculosis of bone a reparative power and a behavior in general which it does not possess in general. It is not apparently attended with much risk, but its real utility in permanently maintaining the improved position is yet to be proved. The operation is apparently not particularly dangerous. One need not use in all cases an obviously unreasonable amount of force, as advocated by Calot, but several gentle rectifications may follow each other. Paralysis may often be cured; the deformity may be largely corrected, temporarily at least, in recent cases; and in view of the decidedly unsatisfactory status of the present treatment of Pott's disease, the method is bound to be used, probably abused, advocated and decried until finally it finds its real level and is estimated at its true value. What that real value is no one can tell until much time has elapsed — time enough to show ultimate results.

There has been yet no interval for the discussion of anything more than immediate results regarded in the

¹⁰ Gaz. Med. de Paris, 1897, x, s. 1, 231.

¹¹ Deutsche med. Woch., 1897, 558.

¹² Ann. de Chir. et d'Orth., July, 1897, 218.

¹³ Gaz. d'Hôp., 1897, 70, 656.

¹⁴ British Medical Journal, 1897.

¹⁵ Comm. to Twelfth International Medical Congress.

¹⁶ Arch. Prov. de Chir., 1897, vi, 383.

¹⁷ Münch. med. Woch., 1897, 86.

¹⁸ Bilhaut: Ann. de Chir. et d'Orth., July, 1897, 183.

light of the slow progress of tuberculosis of bone. Neither is it possible to say yet just which cases are best suited to this treatment. They must obviously be recent cases, that is, cases without ankylosis; and adults and children are apparently equally amenable. Beyond this nothing definite can be said.

The method is of value in one way, even if time should prove it in every other to be worthless, which is altogether unlikely. It has shown us that an ambulatory apparatus can be applied which shall hold straight even a vertebral column where the bodies of the vertebrae do not exist but where they only bound a gap. But this apparatus must include the head and shoulders. If this turns us aside temporarily from our routine of braces and jackets to remember that body weight can be supported elsewhere than on the vertebral bodies, if we are only willing to use sufficient apparatus, the method of Calot, or rather Hippocrates, will have helped conservative methods and given new energy to the efforts to prevent deformity.

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Clinical Department.

ENORMOUSLY DILATED INTRA-PERITONEAL LYMPH VESSELS.

CYSTIC LYMPHANGIECTASIS. DEATH FROM SHOCK.

BY JOHN HOMANS, M.D., BOSTON.

I HAD KNOWN M. K., age thirteen, from her early childhood, about ten years. Her abdominal enlargement had been slow and progressive. When I first saw her, at the age of three years, I found the abdomen large, and thought the fluid ascitic because I could always hear more or less intestinal gurgling in the midst of the fluid. At other times the fluid seemed to be more or less shut up in different localities, as if partitioned off, or in separate sacs. But as time went on I eliminated ovarian tumors and tubercular peritonitis, and was much puzzled.

I saw her every few years, and always refused to operate until 1895, when her size made her an object of derision to her schoolmates. I hoped that I should find some exceptional kind of ovarian, or other benignant cystic tumor, and should be able to cure her. On May 16th I opened the abdomen with the patient in the Trendelenburg position, above the umbilicus and, after pushing back the omentum, came upon the blue, thin wall of a cyst. The cyst was emptied by tapping, but kept filling up as fast as it was emptied. On further exploration it was found to be connected with other cysts varying in size from that of a large marble to that of a small foot-ball. These cysts opened into each other by valve-like openings scarcely admitting the end of the finger. The fluid which ran out first was straw-colored, the next whitish, not sticky, and much of it resembled the fluid of a parovarian cyst; some of the fluid was, however, chocolate-colored.

In lifting out the mass that seemed to be the wall of the three main cysts, the bowels were brought along

also, and were seen to be intimately connected with the cysts, which ran in among them under or in the peritoneal sac. The only way I could get the cysts out was by very forcible pulling with the fingers and forceps, both inside and outside of the sacs under the peritoneum; and in this way they were incompletely everted and peeled out. During this process there was more or less oozing of blood, but no severe hemorrhage. After the three large cysts had been gotten out, small openings were found running into other deeper cysts in the pelvis; these were emptied by sponging, and kept filling up. The cysts and canals seemed to continue indefinitely, and to have their origin somewhere in the neighborhood of the sacrum. Finally, as the sacs seemed to be endless, I decided to desist from attempting their complete removal; and the separated portions were cut away, though still more sacs or channels remained.

The operation had lasted two hours, and the patient showed signs of shock, with pallor, rapid pulse, etc. Gauze was stuffed in the pelvis, and the walls of the different sets of sacs were stitched to the sides of the incision. Later the incision was closed with silkworm gut save where the gauze protruded. The patient came out of ether well, but with much pain.

In the evening she was very restless, and later delirious. The pulse became feeble and rapid (160). The urine (eight ounces) was drawn by catheter. She died at 2 A. M., seventeen hours after the operation had been begun. There was no thorough autopsy; but the wound was opened, and the gauze was found saturated with fluid; there was fluid also in the pelvis, but there were no clots and no post-operation hemorrhage. Dr. Whitney reported that the cysts were dilated lymph-vessels, and that I might have gone on indefinitely clearing out canals and cysts.

Appended is Dr. W. F. Whitney's report:

CYSTIC LYMPHANGIECTASIS.

The specimen consists of a plexus of tortuous, irregularly dilated and communicating, thick-walled tubes measuring about fifty centimetres in length. They are extremely complex in their course and union, running for a short distance (six to eight centimetres) as a cylindrical tube three or four centimetres in diameter, and then opening by a sharp circular ring into an irregular cavity, the largest being ten centimetres in diameter. In places this opening is on one side, and not in the line of the direction of the tube. The outer surface is covered by fragments of thin, loose connective tissue, in which the mass evidently lay. The wall proper varies from two to four millimetres, and is of a firm fibrous structure, the outer layers being infiltrated with blood. The inner surface is corrugated, but smooth.

Microscopic examination showed the wall to be made up of simple fibrous tissue increasing in density from without inwards, the innermost layers consisting of dense wide fibrillae, with only an occasional spindle-shaped nucleus. It was vascularized throughout its entire thickness, very small vessels being detected quite close to the inner surface. No smooth muscular fibres were found.

From this it is evident that we have to do with dilated spaces or channels in the connective tissue, which has become much thickened immediately about them. From the absence of any epithelial lining, or adherent blood corpuscles, the inference is justified that they must stand in communication with the lymphatic system.

While slight degrees of lymphangiectasis are not uncommon, such an enormous dilatation as has occurred in this case is among the greatest rarities. The specimen is preserved in the Warren Museum of the Harvard Medical School, and numbered 8905.

COMMUNUTED FRACTURE OF EACH PATELLA.

EXCISION OF ONE PATELLA, WIRING OF THE OTHER PATELLA. RECOVERY WITH USEFUL KNEES.

BY CHARLES L. SCUDDER, M.D.,
*Assistant in Clinical and Operative Surgery, Harvard University;
 Surgeon to Out-Patients, Massachusetts General Hospital, Boston.*

B. B., male, forty-four years old, married, fell September 23, 1896, to the sidewalk from a second-story window.

An examination immediately afterward found a compound comminuted fracture of the right patella, with wide separation of the fragments. The wound in the soft parts was about one-third of an inch long. The knee-joint was distended by much fluid. The left patella was also comminuted, but there was no wound of the soft parts. The fragments were small, numerous and widely separated. There was comparatively little fluid in this joint.

Under ether anesthesia the following operation was done.

Left Knee.—A four-inch transverse incision, made below the patella, opened the joint. The patella was broken into so many small pieces that all the fragments were removed. Little fluid was found in the joint, there having been very slight hemorrhage following the fracture. The patella tendon and the quadriceps fascia were sutured across the front of the joint with six silk-worm-gut sutures. A small wick of gauze was left in each side of the joint, and the skin was sutured with silkworm gut. The joint, before being closed, was flushed with sterile water.

Right Knee.—The compound wound was enlarged each way to the sides of the joint. The fragments were exposed, the joint opened and thoroughly flushed with 1 to 10,000 corrosive-sublimate solution and then with boiled water. Three of the fragments were of such size and so well attached that they were sutured with silk sutures. The other smaller fragments were removed. The skin was sutured with silkworm gut. One small wick of gauze was left at one end of the incision.

After-Treatment.—Both knees were immobilized upon posterior wire splints, with wooden side splints and straps, and aseptic-dressings applied. Three days later all wicks were removed. One week later all sutures in the skin were removed. Plaster-of-Paris splints were applied to each leg. Four weeks later the plaster was removed from the right leg. A flannel bandage was applied from the toes to the groin. A few days later the plaster was removed from the left leg and a flannel bandage was applied.

About seven weeks from the operation, passive motion was gently made at both knees. Union was firm of the sutured fragment of the right knee. Nine weeks from the operation the patient was discharged from the hospital with crutches, wearing flannel bandages upon both knees.

One year and four months after the operation the condition of the knees is as follows: Firm union of the right-knee fragments. Useful motion to a right angle. No pain. Practically no disability. As strong as ever. The left knee presents, in the entire absence of the left patella, a curiously flattened appearance. Motion of the left knee is slightly beyond a right angle. There are two little nodules of bone just under the skin near the outer side of the left knee. These are probably bits of bone left at the time of the oper-

ation, which if pressed upon are slightly sensitive. Otherwise the left knee is functionally as strong as if there were present a natural and normal patella.

This case is reported because of its unusual character. Simple transverse fractures of the patella from a fall or muscular violence, with slight separation of the fragments, are best treated by non-operative measures.

Simple transverse or comminuted fractures of the patella, with wide separation of fragments, are best treated by operation and suture of the fragments.

Compound fractures of the patella, whether transverse or comminuted, whether with much or little separation of the fragments, are best treated by operation.

If the fragments of the patella are so greatly comminuted that the integrity of the patella cannot be restored, then an excision of all the fragments is indicated and a suturing of the strong quadriceps extensor fascia to the ligamentum patellæ and the fascia on each lateral aspect of the knee-joint.

Reports of Societies.

BOSTON SOCIETY FOR MEDICAL IMPROVEMENT.

JAMES G. MUMFORD, M.D., SECRETARY.

REGULAR Meeting, Monday, November 29, 1897, the President, DR. A. L. MASON, in the chair.

DR. C. F. WITHINGTON read a paper entitled

PULMONARY ABSCESS AND GANGRENE.¹

DR. F. C. SHATTUCK: Dr. Withington's interesting paper brings up several important points: in the first place, the complex condition which we are apt to encounter in any given case of gangrene of the lung so called. As he has clearly shown, abscess is very apt to be associated with gangrene; and the latter, after the separation of the slough, is liable to form an abscess. In fact, gangrene and abscess may be almost interchangeable clinical terms. Secondary empyema and secondary changes in the lungs, peritoneum or other parts may be complications or sequelæ. Another interesting point, especially interesting to me, which he brings out is the more favorable prognosis in cases of gangrene following pneumonia. My own experience, limited as it is in this line, quite coincides with Dr. Withington's accurate statistical facts as regards that point. Most of the gangrenes which I have seen get well have followed pneumonia, and it has seemed to me that pneumonia in drinking men was rather more apt to be followed by gangrene than pneumonia in temperate men, though as to that I do not feel perfectly sure.

The diagnosis of pure abscess of the lung seems to me a very difficult one, and the cases of pure abscess must be pretty rare. I passed an hour this afternoon looking over the records of my own cases at the Massachusetts Hospital. Among these were five set down as abscesses of the lung. When I came to look over the record of those cases, I was satisfied that at least two of them were nothing but empyema, the diagnosis of abscess having been written in by the house-officer or some one other than myself. For some years I now have taken pains to write the diagnosis myself.

¹ See page 220 of the Journal.

So that only three cases could be classed as abscess of the lung. In two of the three it seemed to me that the abscess, if such existed, was probably an inhalation affair. One of them was in a man who had been operated on by the surgeons for an irreducible hernia. Soon after he began to cough; eight days later his expectoration became foul, and he was transferred to me as a case of abscess with gangrene. He had signs of local consolidation on one side, and about a month later was discharged much improved. Sent to Waverley. Presumably got well. I thought the disease probably originated from the inhalation of something at the time of his etherization.

Another case which I considered to be of the same character was a man who was fished out of the Charles River. It was not known how he got there. As a result of the wetting he got an acute catarrhal nephritis which soon passed off. He also had expectoration, which became fetid, and I thought that he perhaps inhaled some of the dirty Charles River water, which must have enough germs of all kinds in it to make an abscess or a gangrene or anything else. A few tubercle bacilli were found in his sputum, so that presumably he was not a healthy man when he got into the water.

In another case I made the diagnosis of abscess of the lung, and I believed that the pleura was adherent. There was an area of limited bronchial breathing in one back. There was offensive expectoration, the man was evidently going down, and I asked Dr. Elliot to operate on him. He incised the point which I designated and got into the lung; the pleura was adherent there. He got into a friable lung tissue, but did not open any distinct abscess cavity. A drainage-tube was left in, and about a week later the man was re-transferred to me, dying two days later. At the autopsy the drainage-tube was lying in a cavity about one and a half inches in extent lined by pyogenic membrane. Death occurred only eight days after the operation. That would seem a pretty short time for pyogenic membrane to form inside of a traumatic cavity, as it was called by the pathologist. There was an encapsulated small empyema containing only about an ounce or so shut in at the base on the right side. There was a general peritonitis. No obvious communication was found between the pleura and the peritoneum to account for the peritonitis. This same man had a cheesy non-tubercular broncho-pneumonia.

Two other cases, classed simply as gangrene, were discharged doing very well, and I think in all probability recovered.

It has seemed to me that the administration of oil of eucalyptus, where the patient's stomach would take it, was a valuable means of diminishing the fetor of the expectoration.

DR. ARTHUR T. CABOT said that he had had one interesting case of gangrene of the lung in which operation was followed by recovery. The patient, a man of about twenty-five, had been in the wards of the Massachusetts General Hospital for an attack of pneumonia, which was followed by evidence of fluid in the chest. When operation was advised, he was alarmed and he left the hospital. A week or ten days later, having been very ill during that time, he sent for Dr. Cabot, who found him expectorating foul pus with evidence of a considerable collection of fluid in the right side of the chest. He advised his immediate return to the hospital, which was acceded

to, and he operated upon the following day. A large quantity of pus was evacuated through a free opening in the lower part of the chest. Presently sloughs of lung tissue began to appear, and were dragged out through the opening with some difficulty. It was difficult to tell just how large a portion of lung tissue was represented by these sloughs; but when they were put together, they seemed to represent a considerable portion of the lower lobe. The patient made an extremely good recovery. The cavity rapidly contracted, and the tube was finally taken out about as soon as it would have been after an ordinary empyema.

In this case the sloughs were large, and delay in operation had given them time to completely separate, the patient fortunately having strength sufficient to bear this illness.

An interesting fact in regard to this patient was that, about six months later, when seen by Dr. Cabot, measurements of the chest showed that the right side was somewhat less than an inch smaller than the other, and the lung was very fairly expanded towards the base.

Dr. Cabot said that his feeling would be that, in any case of gangrene where empyema existed, immediate operation was the one proper measure and offered the best hope of recovery, no matter what the patient's condition. The drainage of such a cavity through the bronchi is very imperfect, and is liable to lead to infection of other parts of the lung, so that the sooner drainage through the chest wall is afforded the better. This opening should be a free one in order to provide for the escape of sloughs which subsequently separate.

Dr. Cabot said that he had had no experience in treatment of gangrene where the pleura was not also affected.

DR. V. Y. BOWDITCH: I have been hoping for a long time that we could reach the stage when operative procedure in such cases as Dr. Withington has spoken of could be resorted to with much greater frequency. I have had the feeling, after reading the reports from the other side of the water, that we were a good deal behind the times here in such matters; and I have been on the watch in my hospital practice for cases in which the condition of the patient and the signs of the disease were sufficiently well located to justify a surgical opening with drainage. I confess that the great difficulty in most cases that I have seen has been the inability to find a definite point at which I could ask the surgeon to make his incision, the signs having been more or less diffused.

In the discussions which we read of in the Paris societies the impression we gain is that the operation can be resorted to much more frequently than we do here; and yet, of course, we are obliged to take into consideration, even in these reports, the possibility of errors of diagnosis. As far as we can learn from the meagre reports of the late International Congress at Moscow, the consensus of opinion is in favor of the operation in a great many cases. Three or four isolated cases of what would seem to be by the reports undoubted cases of pulmonary gangrene with successful operation have been given lately in the *London Lancet*, and *British Medical Journal*. The signs have all pointed to acute pulmonary gangrene; and in each of the cases at the point of operation the pleura were adherent, simplifying the operation of course.

In this connection in regard to treatment, I should like to mention again one case of pulmonary gangrene which I reported with Dr. W. N. Bullard, in my service at the Carney Hospital, about eight years ago. We used in this case intra-pulmonary injections, the chief ingredients of which were carbolic acid and iodine. It was a striking case, the results in which were corroborated by other physicians. A young man had been seized with a sudden violent pain in the right side without any previous symptoms of ill-health. He entered the hospital and signs only of a catarrhal condition apparently at the top of the right lung were found, with beginning very fetid expectoration. Signs of a rapidly increasing process developed, and although every means were tried to diminish the fetor and cough, he went rapidly down hill. No bacilli were found upon repeated trials. After two months of ineffectual treatment, with every sign of rapid decline, it was decided to try intra-pulmonary injections. They were made in the second intercostal space, between the anterior axillary and mammillary lines. Iodine was noticed in the breath immediately; a slight fit of coughing resulted, but marked diminution of the fetor and cough began from that time. The improvement in every symptom lasted several weeks, when again the fetor appeared. In the space of five months about the same number of injections were given, each time with marked improvement and steady gain until at the end of that time he left the hospital fat and well, without a trace of cough or expectoration; the physical signs showing a healed process at the top of the right lung. For six months he remained well, but by dissipation of various kinds injured his health, and, at the end of the time appeared with signs in the top of the left lung, the right remaining as before. The sputum then showed bacilli but had no fetor. All the symptoms of acute tuberculosis appeared and he died soon after. No autopsy could be obtained. As to the marked benefit from the intra-pulmonary injections in the gangrenous conditions over the right side there was no shadow of doubt in the minds of any of the four or five physicians who watched the case.

If I were to find definitely located signs in any such case, I should never hesitate to use the intra-pulmonary injections again; but I hope we can do still more by more radical surgical procedures in the future.

DR. F. I. KNIGHT: I happen to have a case under observation now in which there is apparently recovery going on after gangrene following pneumonia in a patient whom I saw with a most profuse hemoptysis twenty-five years ago, who since then has been perfectly well until about two months ago, when, according to his family physician, he had an attack of pneumonia. When he was pretty well convalescent five or six weeks ago, he was attacked with profuse stinking expectoration, without doubt due to gangrene, which has gradually subsided, and all his symptoms have improved so that I think he is going to recover without any surgical interference. It seems a pretty good case for interference if occasion requires, as the signs are at the very lower part of the right chest—a moderate amount of dulness and moist râles pretty well down to the base. I don't think there is any empyema; at any rate there is nothing to justify any immediate interference. It seems to be one of those cases following pneumonia in which recovery takes place more frequently than when the condition ensues upon other diseases.

DR. MASON: In young subjects with fetid expectoration it is often exceedingly difficult to determine whether we are dealing with a gangrenous cavity in the lung or a circumscribed empyema discharging through the bronchi. The gangrenous process in the young subject is a rare one. I do not know that I have seen a young person who has developed gangrene after pneumonia, whereas in the aged and in those who have bronchiectatic cavities it is more common and almost invariably fatal. In a few cases of fetid expectoration in young persons after pneumonia, with recovery, it has seemed to me more probable that the condition was a localized empyema opening through the bronchi, not a very uncommon sequence of pneumonia, as it is well known that pneumococcus empyemas have a greater tendency to perforate externally or into the bronchi than other forms of empyema. In case of recovery the diagnosis of pulmonary gangrene as apart from empyema may be a difficult one. Lately I had such a case. A young man after pneumonia was expectorating foul pus. After determining the locality I explored with a good-sized needle, but there was no cavity to be found. He still went on expectorating pus and got well, but he emptied the cavity so completely that, although puncture was made at a point where breath sounds were absent, I did not reach the cavity. In such a case it seems to me difficult to determine what the nature of the process was.

DR. WITHINGTON: I felt a great deal of interest in the case Dr. Cabot reported; and I wonder whether in that case, where the lung on the side of the operation had filled out to such an extent as to be almost of the same size as the opposite side, and yet where a large part of the lower lobe had sloughed away, whether the auscultatory signs indicated that any function was going on in the lower part of the lung. It seems hard to believe that much breathing could be done with so much of the lung absolutely sloughed out, and yet if it was not, it is hard to understand how the lung could have filled out to the point indicated to make that side of the chest nearly as large as the other.

The coincidence of empyema with gangrene of the lung is very frequent; but it seems to me in a good many cases the process is internal in the lung and no empyema is present at all. In one case that came to autopsy the gangrenous cavity approached very near to the pleura, but the pleura was not found adherent over it. It seems to me that in that kind of cases surgical treatment is almost hopeless because an incision is sure to make the lung collapse and so to interfere with drainage and, on the other hand, there is a strong likelihood of an infection of the pleural cavity and a general empyema.

DR. C. L. SOUDDER read a paper on

TUBERCULOSIS OF THE BREAST.

This comprised a report of one case and an analysis of all cases (80 in number) recorded in literature to date.

A SAFETY CLUB.—Dr. A. W. Nelson, of New London, Conn., has invented a policeman's club, coated with semi-vulcanized rubber, which he claims, is sufficiently yielding to prevent a blow with the club from fracturing the skull, while still being sufficiently convincing to the unruly arrestee.—*New York Medical Record.*

THE BOSTON
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LIBERTY, LICENSE OR LAW.

At the recent hearing on the bill to amend the Massachusetts Act for Medical Registration, at the State House, some statements made by a gentleman, with a medical education but never a practitioner, subsequently a professor of psychology and now of philosophy, justify a reply.

The amendment complained of was in the following words—guarded, however, as we shall show—by the preceding section:

SECTION 5. Any person shall be regarded as practising medicine within the meaning of this act who shall append to his name the letters *M.D.*, or shall assume or advertise the title *Dr.*, or *Physician*, or any other title which shall show or tend to show that the person assuming or advertising the same is a practitioner of medicine, or of any of the branches of medicine; or who shall investigate or diagnose, or offer to investigate or diagnose, any physical or mental ailment or defect of any person with a view to affording relief, as commonly done by a physician or surgeon; or who shall prescribe for or treat a person for the purpose of curing any real or supposed disease, whether by the use of drugs or by the application of any other agency or alleged method of cure or alleviation or prevention of disease; or to operate as a surgeon for the cure or relief of any wound, fracture or bodily injury or deformity, after having received therefor or with the intent of receiving therefor either directly or indirectly any bonus, gift or compensation.

The conservative restriction is as follows:

SECT. 3. Nothing in this act shall be so construed as to discriminate against any particular school or system of medicine, or to prohibit service in a case of emergency, or the domestic administration of family remedies.

This amendment, according to its framers, is aimed at medical quacks; and no one, it was thought, would oppose it, except those in sympathy with incompetent practitioners. Spiritualists, Christian Scientists, magnetic healers and druggists appeared in great force in opposition.

In the name of Liberty, Prof. William James, of Harvard College, appeared to protest in behalf of the Christian Scientists and mind-healers. We quote his words, as reported:

"The mind-curers and their public return the scorn of the regular profession with an equal scorn; and will

never come up for the examinations. Their movement is a religious or quasi-religious movement: personality is one condition of success there; and impression and intuition seem to accomplish more than chemical, anatomical or physiological information."

Professor James's argument is based on three principal points:

(1) That the modes of treatment attacked are religious.

(2) That the legislature, having no medical knowledge, has no right to legislate in medical matters.

(3) That the regular medical profession are trades-unionists, influenced by their own methods and by a non-receptive conservatism.

It is wisely ordained by Nature that the will does not have control over the smooth muscular fibre of organic life; were it otherwise all our organic functions would be interrupted and unequal. Of such fibre, and with such insensibility to the direct action of the will, is the womb.

We are informed that within a few years, in a neighboring suburb, a woman in labor was under the treatment of the mind-cure, or Christian Science, without other physician. The child was expelled by the natural efforts, but there nature stopped. The patient was prayed over, and urged to concentrate her will on the womb, and to determine to be well, and she would be. Meanwhile, the womb relaxed, the sinuses opened, flooding occurred, and the woman died, without medical aid. A physician would have emptied the uterus with the hand, have given ergot, and probably saved her life.

"Do you dare," says the professor, "to thrust the coarse machinery of the criminal law into these vital mysteries?" alluding to the proposed enforced education and registration of Christian Scientists.

"Do you dare," might the friends of this poor woman reply, "to withhold the coarse machinery of the criminal law from the author of this patient's death?"

The heart, once thought to be the seat of the emotions, is somewhat affected by the mental state, but not so far as to interfere with its purely mechanical functions. The heart is a pump which forces the blood from the ventricle through the lungs; if the lungs are obstructed, the blood regurgitates into the heart, its walls are over-stretched and paralysed, and it stops. In case, then, of any obstruction of the lungs, the heart can only continue to beat by being aided by rest and absence of effort; a quiet current may thus partially flow through the lung.

Near Boston, very recently, we are credibly informed, a man ill with pneumonia was under the sole care of a Christian Scientist. Here the will was called on by the reputed healer, and the patient told to will to be well, and all would be well. The sick man was directed to make an effort to get up and walk. He struggled to do so; but he walked to his death, for he never regained his bed alive.

Here the will failed; the pump was clogged, faith erred, the victim died.

Professor James says: "The history of medicine is a really hideous history, comparable only with that of priestcraft."

Have we returned to medieval superstitions, where ghosts walk and miracles abound? where cities rot and rivers stink? where the plague riots, where charms and prayers are the remedies, and where, if they avail not, all must die? A man has a right to poison himself, but not to poison others. "Science," says Mr. Buckle, "is the result of inquiry; theology is the result of faith. In the one the spirit of doubt, in the other the spirit of belief. In science, originality is the parent of discovery, and is therefore a merit; in theology, it is the parent of heresy, and therefore a crime."

Which will you take, blind credulity or open-eyed investigation? The royal touch, the water of Lourdes, the amulet, or vaccination, antitoxin, antiseptics?

Such cases as those narrated prove the faith-cure valueless, unless based on anatomical and physiological knowledge. Faith may unhinge an hysterically contracted knee; it cannot control the eruption of scarlet fever or remove the membrane of diphtheria.

Clairvoyance, the assumed Röntgen ray of faith, or spiritual insight, is useless to see with, unless it knows what to look for, and what to see. Goethe has somewhere said, "The eye sees only what it has the power to see"; for special training and previous knowledge are requisite to understand, or to utilize, what one sees.

To pass to the second proposition. We quote from Professor James:

"Were medicine a finished science, with all practitioners in agreement about methods of treatment, a bill to make it penal to treat a patient without having passed an examination would be unobjectionable; but the present condition of medical knowledge is widely different. . . . The hinge of my whole contention is that in strictly medical quarrels the State has no right to intervene."

To intervene between whom? With medical schools or systems the bill disclaimed interference. It claimed only the right to be satisfied that those who treat the sick, by *any method*, have some knowledge of the body they are to treat. Plumbing is a comparatively exact trade, but the State requires that the plumber shall be examined and licensed. Why? Because his calling affects human health. Electricity, on the other hand, is ill understood, employed with risk, subject to unexplained vagaries and accidents; it is notoriously an imperfect science. Yet the State has a right to regulate it because it endangers human life.

Steam-power, gas-light and other agencies come under the same category. Will you test your engineer and examine him? or call in the first fool, who *professes* to know, to sit on the safety-valve of your boiler, instead of watching the steam-gauge? We regulate such trades; shall we not enforce some method in the treatment and care of the sick?

As Dr. Harvey, of the Board of Registration, well

says, "You cannot bury your sister or your daughter without medical opinion, because the Commonwealth demands it; no one can be deprived of liberty and confined to an insane asylum without medical opinion; life insurance companies would become insolvent in a year without medical opinion; the city of Boston cannot have a board of health without medical opinion. Are we to be told that this State cannot have medical opinion of any kind? Contemplate what would be the results were the State to recognize the contention of these remonstrants. I say, with regret, that the chief remonstrants who have appeared here are opposed to every safeguard of the State pertaining to public health. They are opposed to all quarantine regulations, to medical examiners, to the compulsory law for vaccination, to the reporting of all contagious diseases."

To quote once more from Professor James: "Now as to calling the Massachusetts Medical Society a trades-union trying to legislate against scabs, I can hardly imagine any member of the society affirming that in the movement for the present bill trades-union motives are totally absent."

We had perhaps foolishly thought, that ours was a profession and not a trade; that commercial motives, though indispensable to our living, were not the first in our minds. A trades-union of self-denial, of charity, of saving life at any cost — a masonry of benevolence and of love — would more accurately describe most medical practitioners. They alone toil most without reward, and sacrifice themselves oftenest without fee. But let that pass. Doctors are men; some are selfish, all are human and fallible. Are they so conservative that they are unwilling to receive new ideas? Charcot and hypnotism; Brown-Séquard and epilepsy; the psychology of insanity; the growth of knowledge in neurology, with Horsley and McEwen. Are these signs of an insensible conservatism toward the great field of mental therapeutics? Have these men, or the ghosts of our fathers talking through mediums, and the revelations of Christian Scientists, done the most to clarify an obscure subject, to advance knowledge? to heal the mind and body diseased? Physicians welcome, seek, try every new thing. If useful, they adopt it; if not, they throw it aside. The educated mind, however, insists that the crucial test of experiment shall be applied by hands and eyes trained to see and observe, and familiar with the body in health and disease.

However, to quote once more from another speaker for Christian Science: "We claim that we derive our license to heal our fellowmen from a higher than human power." Hence we suppose they are not amenable to human laws. What more can be said? Only this: with the doctor, on his lonely calls and vigils, rides responsibility, anxiety, self-questioning, diffidence. *Atra sedet cura*. He tries all things; he seeks all things; he weighs all things; and with a single eye to his patient's recovery.

Would you prefer to trust yourself to the physician, or to the metaphysician?

MEDICAL NOTES.

THE GERMAN CONGRESS OF SURGERY.—The twenty-seventh Congress of the German Surgical Society will be held in Berlin from April 13th to 16th.

POLITICS AT VIENNA UNIVERSITY.—Owing to the national feeling running so high among the students of the Vienna University, including those from Upper Austria, the Senate has declared the lectures closed for the session.

THE MEDICAL LOG OF THE "MAINE."—The journal of the medical officers of the *Maine*, which was recovered by divers after being under water for four days, showed that Surgeon Heneberger kept his records up to date. The last entry was on February 15th, the day of the explosion.

THE WAY IT LOOKS IN NEW YORK.—Boston is a very hotbed of "Christian Science," if one can judge from the large number of "Reverends," "Professors," and the like that are openly expressing their opposition to the bill now before the Massachusetts Legislature, which, if passed, will put a summary end to the substitution of crazy folly for common-sense and experience in the treatment of disease. The titles of these people are doubtless much more impressive to those who do not know the bearers of them than to those who do, but they are presumably respectable, and more or less well-educated members of society, and it tells much that they can defend a miserable superstition without encountering any large amount of local criticism. Is the Boston standard of intelligence degenerating even more rapidly than the passing away of the city's literary honors would seem to indicate?—*New York Times*.

BOSTON AND NEW ENGLAND.

ADVERSE REPORT ON THE RESTRICTION OF MEDICAL PRACTICE.—The Committee on Public Health of the Massachusetts Legislature have reported adversely on the amendment submitted by the Board of Registration to the law requiring registration of practitioners of medicine.

CENTENNIAL REPORT OF THE BOSTON DISPENSARY.—We are in receipt of this very handsome report of the history and work of the Boston Dispensary, compiled by Dr. Robert W. Greenleaf, and published by the Board of Managers. In our issue of October 15, 1896, the date of the one-hundredth anniversary of its founding, we gave an editorial notice of the history and present status of this excellent and deserving charity. We note that the staff of the dispensary has effected a permanent organization, of which Dr. Harold Williams is President, and Dr. Frederic M. Briggs Secretary and Treasurer.

NEW YORK.

DEDICATION OF A NEW HOSPITAL BUILDING.—The new building of the New York Skin and Cancer Hospital, at the corner of Second Avenue and 19th Street, was formally dedicated and opened for inspec-

tion on March 5th. Addresses were made by J. Cleveland Cady, President of the Board of Managers, and by Drs. A. Jacobi and L. Duncan Bulkley. Mr. Cady explained that the funds for the erection of the building were principally derived from the sale of the suburban property, which the institution had purchased a number of years ago for the establishment of a country branch, but which it had been found impracticable to maintain. In the course of time this property, which was situated at Fordham Heights, had greatly increased in value, and had finally been sold to the New York University for four or five times its original cost. In the course of his remarks Dr. Jacobi said that this institution was exclusively for the benefit of the poor. "Under the prevailing circumstances," he said, "of most of our public institutions, dispensaries and clinics, the poor are crowded out by those who are quite able to pay. See to it, no matter how that difficult task may be accomplished, that public dispensaries and institutions are reserved for those who, because of poverty, are the natural wards of the Commonwealth. The result will be the gradual return of self-respect to those who now behave, not like free citizens of a republic, but like sneak thieves, who obtain valuable things under false pretences." Dr. Bulkley, who was the originator of the hospital, delivered an address on "The Care of Diseases of the Skin and Cancer in New York and Elsewhere," and in it gave an elaborate review of the work accomplished by this institution in the course of its history of fifteen years. The number of patients treated has been 25,031, of whom 3,010 were in the cancer department, 22,021 in the skin department.

THE NEW PRESIDENT OF THE BOARD OF HEALTH.—Mr. Nathan Strauss has resigned the presidency of the New York City Board of Health and Mayor Van Wyck has appointed Col. Michael C. Murphy to the position. Colonel Murphy is a Tammany Hall politician, but his record has been a creditable one. He served with some distinction in the Civil War, and for many years was a member of the Legislature, where his vote was always in favor of small parks, free recreation piers, and other improvements for the benefit of the poor. He was also formerly an Excise Commissioner. In 1890 Dr. Robert F. Weir performed the operation of gastrotomy on Colonel Murphy on account of incurable stricture of the esophagus, and since that time he has taken all his food through a silver tube inserted through the abdominal walls into the stomach.

RECIPROCITY IN STATE WARDS.—The Secretary of the State Commission in Lunacy recently addressed a letter to the Secretary of the State Board of Charities of Colorado requesting him to arrange for the reception of a patient who had come into New York and had been committed to one of the State hospitals for the insane. The answer of the Colorado official was to the following effect: "We are greatly in favor of your law relative to the removal of non-

resident insane. We have about forty consumptives from New York maintained in our county hospitals at public expense at the present time, and as soon as a law similar to this is in effect here we shall be glad to reciprocate all favors."

CONTINUED LOW MORTALITY. — During the month of February the mortality of the city remained exceptionally low for this season of the year. In the week ending February 5th it represented an annual death-rate of 18.01 per thousand of the estimated population. In the week of February 12th the death-rate was 19.06, in that of February 19th, 19.05, and in that of February 26th, 17.52. In the week ending February 19th the death-rate in the Borough of the Bronx reached the high figure of 30.45, but this was officially explained to be due to the number of large institutions in that part of the city. Fortunately, the total population of the borough is such a comparatively small portion of that of the whole city (187,075 out of 3,438,899) that the large death-rate here has little effect in lowering that of all the boroughs taken together. The lowest death-rate reported during the month was that of the Borough of Richmond (Staten Island) in the week ending February 26th, which amounted to only 12.05. The largest number of deaths from diphtheria in any one week was 47, and the smallest, 29; from scarlet fever the largest number was 24, the smallest, 18; from measles the largest number was 22, the smallest, 17; from typhoid fever, the largest was 9, the smallest, 8; from phthisis the largest was 153, the smallest, 128; from pneumonia the largest was 216, the smallest, 176. There has been no death from small-pox thus far during the year. The only disease that seems to be increasing to any extent is measles, of which 648 cases were reported in the week ending February 26th, against 593 in the week preceding, and 473 in the week ending February 12th.

DEATH OF DR. JAMES J. STEPHENS. — James J. Stephens died at his home at Tappan, Rockland County, on March 3d, of apoplexy. He was in his 76th year and leaves a widow and two daughters. He was born and educated in New York City, and removed to Tappan fifty-three years ago. While somewhat eccentric in some particulars, he was a skilful physician and surgeon. For forty years he was the owner of the historic house at Tappan in which Major André was confined immediately before his execution.

Miscellany.

TWO CURIOUS "FREAKS."

THE following account of two performers at Barnum & Bailey's Circus at the Olympia is taken from the *Lancet* of February 2d:

One of these entertainers, whose name is Delno Fritz, is a sword-swallower, and asserts that he can swallow longer swords than have ever been swallowed before. We for

our part never want to see any one swallow more rigid metal. To those who know the surface markings of the abdomen and the situation of the stomach it is little short of appalling to see this man pass a sword down his gullet until the hilt impinges upon his teeth and then withdraw the weapon and demonstrate by outside measurement that in the erect posture the point falls some inches below the usual line of the lower curvature of the stomach. What really happens, of course, is that Delno Fritz has learned, consciously or unconsciously, to stretch the somewhat loose and elastic tissues between the lips and the cardiac orifice of the stomach, so that these tissues will lie along his blunted sword in a condition of extension, while a protruded chin assists in the prolongation of the pharynx. It should be added that the solidity of the weapon with which the feat is performed is beyond question.

A second person in whom medical men must be interested is one Young Hermann, who can expand and contract his chest and abdomen at will to really remarkable dimensions. He is able to make a *bona fide* difference of sixteen inches in his chest measurements, and accordingly to snap chains and straps fastened across his thorax by the standing pressure he is able to effect upon them. The alterations which he produces in his abdominal outlines are no less striking. By swallowing air and then effecting pressure upon it by contractions of the rectus abdominis muscle he can rapidly pass from the appearance of extreme corpulency to the appearance of horrible emaciation, the skin of the abdomen appearing in the latter case to lie against the spinal column. His extraordinary power of swallowing and inhaling air enables him to shift the apex beat of the heart many inches and otherwise to displace his viscera.

The power of swallowing air is not exceedingly rare, but the extent to which Young Hermann possesses it is unexampled in our experience. It is probable that Joseph Clark, the celebrated posture-master of the seventeenth century, possessed the secret of this trick in addition to his unwholesome knack of dislocating many of his joints at will. It may be remembered that Clarke's favorite joke was to go to a tailor to be measured with his right shoulder, say, much higher than the left, to return to fit the suit on with the protuberance on the other side, and finally to call at the shop and reject the clothes indignantly, having this time assumed a central hump. Young Hermann might amuse himself in a similarly ill-natured way if the inclination took him.

Obituary.

JOHN PARKER MAYNARD, M.D.

DR. JOHN PARKER MAYNARD, of Dedham, Mass., whose death in that town on February 26th, at the age of eighty-one, was noted in last week's *JOURNAL*, was born in Boston in a house which stood on the spot where the store of Joel Goldthwait & Co. now stands, on lower Washington Street, then Marlborough Street. He was educated at the Latin School and Yale College, and was graduated from the Harvard Medical School in 1848.

While still a student at the Medical School, almost exactly fifty years ago, he was probably the first to employ the ethereal solution of prepared cotton, which is now known as collodion, for surgical dressings, though he established his claim to this distinction only after a rather animated controversy with his classmate, Dr. Samuel Lee Bigelow, who was the first to publish an account of the surgical uses of collodion. Bigelow's article appeared in the *JOURNAL* of March 22, 1848, and was entitled "A New Method for Rapidly Uniting Wounds by First Intention." Bigelow had obtained the formula for preparing collodion from Dr. Charles T. Jackson, and had first used it as a varnish to protect a plaster cast. He had subsequently employed it as a surgical dressing, and introduced it as such at the Massachusetts General Hospital, where its use found favor.

In the *JOURNAL* for March 29, 1848, Dr. Maynard pub-

lished a communication addressed to John D. Fisher, M.D., of Boston, and read before the Boston Society for Medical Improvement on March 27th, entitled "The Discovery and Application of the New Liquid Adhesive Plaster," in which he stated that his friend and fellow-student, Mr. Samuel L. Bigelow, had in January, 1847, shown him some of the new varnish, which he had prepared according to a formula furnished him by Dr. Jackson, who had obtained it from Professor Schönbein, of Germany. Dr. Maynard, in an unsuccessful experiment in the use of the varnish to protect a gilded surface, got some of it on his fingers, and noticed that it dried quickly, and glued his index and middle fingers firmly together. This occurrence immediately suggested to him its use as a substitute for adhesive plaster in surgery, and he began to use it with excellent results. He informed Mr. Bigelow of these results, and afterward Mr. Bigelow began to employ it in surgical operations.

In the controversy which followed, several letters were published in the JOURNAL by both claimants to the discovery, and the result was that the weight of evidence may be said to have established Dr. Maynard's claim. Dr. Maynard's tone towards his rival in this discussion was uniformly courteous and considerate. Dr. Maynard began practice in Newton Upper Falls in 1848, and in 1852 went to Dedham, where he practised during the remainder of his long and honorable career.

He was a member of the Massachusetts Medical Society, and for some years a councillor, and at one time president of the Norfolk District Medical Society. He published in 1866 in the JOURNAL another paper on the surgical uses of collodion.

Correspondence.

EPIDEMIC SUICIDES.

BOSTON, February, 1898.

MR. EDITOR:—Although the subject of epidemic suicides lies beyond the scope of practical medicine, still I think that the following occurrence which took place just one year ago in Russia, and which was extensively spoken of in the European as well as in the American press, presents such interesting features as to claim the attention of not only the special psychological investigator, but of all those—and the physicians are surely among them—who in any way at all concern themselves with the study of man in health and disease. The incident was widely commented upon, but rather in a vague and disconnected manner; and it remained for Professor Seekovsky, a well-known neuropathologist, and a prolific writer on psychiatry, attached to the University Keeyeff, to investigate the subject and to attempt to give to it a scientific explanation. The space allotted to this correspondence will, however, hardly permit us to dilate on his conclusions, and we will therefore present the facts and let the reader draw his own conclusions.

To become thoroughly acquainted with the particulars of the case, Professor Seekovsky made a special journey to the place of its occurrence (in Southern Russia, in the Government of Cherson, some fifty to sixty miles north of Odessa), lived for some time with the chief participants, and embodied the results of his investigations in a special work on epidemic voluntary suicides.

The *dramatis personæ* belonged to one of the various religious sects which are abundant in this part of the empire. They occupied a large, barn-like structure, which was well guarded by secret, underground exits and almost constantly locked doors, from invasion by any unwelcome guests. The population consisted almost entirely of women, with an occasional sprinkling of men and children; at the head of the sect was a certain Vitalia, an elderly woman, possessing wonderfully strong will powers, wielding an unbounded influence over the rest; she was, as a matter of fact, the potentate of the place, ruling over it with an iron hand, exerting a sway the rest had no power to withstand

—not, indeed, through any physical force, but entirely by moral persuasion, or, possibly, by intellectual superiority. She was at once the teacher, the priest, the superintendent; appointed the hours for prayer, the time for work; designated the character of enjoyments, etc. As soon as the rumors of the decennial census-taking reached the sect (according to whose tenets the counting of living souls constitutes a grievous sin) Vitalia began to prophesy that the reign of the Anti-Christ was rapidly approaching, when all the various sects of the "true believers" would be ruthlessly persecuted by the government, their members exiled, thrown into jails and tortured. These prophecies were constantly and with increased fanatical vehemence repeated by her, day after day, at their meetings, which were participated in by all the members of the sect, including the children, till at last they took the form of facts that were sure to happen, and gained complete possession over the minds of those people. Thus perdition, death in exile or in the jails of the Anti-Christians seemed inevitable. It was in vain that the more reasonable members of the small community attempted to stem the tide of the pernicious propaganda, advising to wait for further developments.

This belief in the unavoidable spread like an epidemic. The influence of Vitalia's preachings exerted an especially destructive tendency on the impressionable minds of the growing children, and one of them, in an ill-fated moment of extreme mental anguish and despair, exclaimed, "It is far better to be buried alive, than to suffer in jail, and be compelled to renounce one's religion!"

The word was spoken! The seed fell on a fertile soil. The suggestion became a resolution, which spread like wildfire; and when the census officials knocked at the doors of the building they were not admitted, and a note was reached out to them through a window hole containing this positive statement, "We can never obey your new laws, but rather prefer to die for Christ."

Vitalia now began to act more and more energetically. She hurried them on, made ready the various preparations for the funeral herself, while her sermons became more and more threatening. She spared no words, no colors, to depict the terrible advent of the Anti-Christ. He is already here, and the sin-ridden earth is doomed to destruction, not in two or three years, but in a few days, so that the greatest possible haste must be made to effect an exit from this world; those who refuse to be buried alive will at any rate be dealt with in the same manner in a few days, with the advent of the Anti-Christ; the gain by waiting is therefore trifling. Gifted by the eloquence of a savage but strong nature, she brought infinite despair and torments to those who eagerly listened to her vivid descriptions of the coming terrors. "What are but two days in the grave compared with the eternal torment in hell; only two days of suffering and then—heavenly bliss forever!"

The first act of the terrible tragedy took place on the night of December 23, 1896. A party of nine people, the first to be buried alive, congregated in an adjoining house, and with tearful prayers and heart-rending good-bys went down to the cellar, dug by common efforts a grave, and with lighted candles, clothed in the "dress of the dead," and chanting hymns, entered it. But the man who was appointed to fill up the grave with earth hesitated, as he considered such an act equal to self-destruction (?), and with tears in his eyes begged to be allowed to go down into the grave with the rest. Vitalia decided that a certain Kovaleff, who was all prepared to enter the grave, should replace him, and this was done accordingly. The filling up of the grave was done with feverish haste, Vitalia assisting Kovaleff. This done they hurriedly locked the cellar and flew home. How long the buried ones remained alive, what unspeakable tortures they underwent, and how they died, is a secret jealously guarded by the grave. According to the opinions of the local physicians, the position of the bodies shows that their sufferings must have been horrible, and merciful death must have visited them in from one and one-half to eight hours each.

The second party (number not stated) was buried by

the same man on the night of December 27th. He, however, before filling up the grave, asked the volunteers, whether or not they were ready to die, and only after a positive reply proceeded with his work, during which he clearly heard for some time how they conversed and prayed.

Meanwhile Vitalia and Kovaleff were arrested, as in conjunction with others they refused to answer the census-taker's inquiries. The intense excitability and an unnatural exaltation, as well as the positive refusal to take any food pointed clearly to the fact that the arrested ones were far from being in a normal condition and that they were preparing to starve themselves to death. From February 5th to February 8th none of the prisoners had literally eaten or drunk anything, protesting that neither the State nor any individual was obliged to feed them, and that their religious belief did not allow them to eat or drink anything that had not been earned by their personal labor. As they continued obstinate in their resolution, they were set free and given over in charge to Kovaleff's mother. The starvation in jail naturally tended to induce a condition of anemia in the brain, and this, along with failure in general nutrition, contributed to accentuate and increase the condition of the nervous excitability. As if possessed, Vitalia took to preaching with even greater fervor, but she failed to find as ready converts as before. However, four old women, who lived with the Kovaleffs, succeeded by repeated requests and beggings in persuading Kovaleff (who by this time began to waver) to bury them; and they were joined by his own sister. The act had to be done with the greatest precautions, as vague rumors of the burials began to spread among the people. He assisted each of them into the grave; and having put themselves snugly together, he tenderly, so as to cause no unnecessary pain, filled up the common grave, his ear catching the last adieu from under the earth.

By this time, however, the period of reaction made its appearance. Vitalia herself began to lose faith in her own prophecies. The condition of ecstasy was rapidly passing, giving way to that of intense disappointment and unbounded despair, which was accentuated by the knowledge of an expected punishment by the authorities, as notwithstanding all the precautions taken the incident became an open secret, and loathing and hatred were expressed on every side toward Vitalia and her accomplice.

Thus exasperated by the failure of her undertaking, Vitalia decided upon destroying herself, and with the quick mind and inventiveness so peculiar to her, she began to exert pressure on three women, including Kovaleff's mother. As a result another, and the last, grave was entered into by these, to whom was also joined a brother of Kovaleff's, a deaf-mute boy. The burying of Vitalia, also done by Kovaleff, was however far from being the solemn procedure it was with the first party; it was but the *dernier resort* of an exasperated helpless soul fleeing from her own self. Before she died Vitalia succeeded in extorting an oath from Kovaleff that he would starve himself to death. He did not, however, keep his promise, and was accordingly subjected to general ridicule and unsparing contempt. He very naively told Professor Seekovsky how he abstained from eating for a few days, awaiting the advent of the Anti-Christ and the "destruction" of the world; but as this last was rather slow in coming, he thought he would drink some water; a day passed — no earthquake — he ate a tomato. Two weeks passed — no earthquake, no general war — and he began to eat little by little.

It would be a mistake to imagine, as some people will do, that Kovaleff is a monster in human form. On the contrary, Professor Seekovsky describes him as a kindly-disposed, mild-mannered man of a tender nature and very weak will. He was at first horrified at the very idea of being buried alive; but prevailed upon by such a woman as Vitalia he performed his terrible part under the influence of a power he was unable to withstand. He buried with the first party his wife and daughter; after this he fell into a condition of complete moral indifference and insensibility. The past seems to him a terrible nightmare; he

was as if hypnotised, experiencing neither fright nor pity after the commission of the act. In talking to Professor Seekovsky he complained of an extreme mental anguish that had taken possession of his soul since the occurrence. It was not remorse that tortured him, but a great sorrow at the painful consciousness of the fact that the past could not be returned. He was not even brought before the court.

This tragedy takes us two or three centuries back, when epidemics of self-destruction by religious fanatics were of not infrequent occurrence in Europe. In the present case it is difficult to determine how much was due to the psychopathic tendencies of the actors, as generated by their religious views, and how much to the external circumstances which probably served only as the spark applied to the inflammable material. But however the case may stand, it proves beyond peradventure the fact that mental epidemics, whether they appear in the Parisian mob of the Zola trial, in the intellectual centre of the most refined nation of modern times, or at a Moody and Sankey revival, or as in the present case, can under favorable circumstances spread as rapidly as epidemics of physically contagious diseases. If this proposition is recognized, and its results be applied to historical investigations, a great many events in the past history of humanity will be viewed and explained in a light totally at variance with the methods of modern historical research.

Again, once these epidemics are recognized as such, that is, as deviations from the normal and the healthy, is it beyond the possibilities of art and science to prevent their occurrence?

A. ROVINSKY, M.D.

RECORD OF MORTALITY

FOR THE WEEK ENDING SATURDAY, FEBRUARY 26, 1898.

Cities.	Estimated population.	Reported deaths in each.	Deaths under five years.	Percentage of deaths from					
				Infectious diseases.	Acute lung diseases.	Diarrheal diseases.	Typhoid fever.	Diphtheria and croup.	
New York . . .	3,438,899	1155	432	8.40	13.26	.90	.24	2.76	
Chicago . . .	1,619,226	—	—	—	—	—	—	—	
Philadelphia . . .	1,214,256	—	—	—	—	—	—	—	
Brooklyn . . .	1,160,000	—	—	—	—	—	—	—	
St. Louis . . .	570,000	—	—	—	—	—	—	—	
Baltimore . . .	550,000	205	74	11.76	18.63	3.92	.98	2.94	
Boston . . .	517,732	186	45	5.94	22.14	1.08	—	1.62	
Cincinnati . . .	465,000	117	—	3.40	16.15	—	1.70	2.55	
Cleveland . . .	360,000	74	28	8.40	12.15	1.35	—	—	
Pittsburg . . .	285,000	111	40	18.90	20.70	3.60	9.90	2.70	
Washington . . .	277,000	106	26	7.68	12.48	.96	.96	1.92	
Milwaukee . . .	270,000	—	—	—	—	—	—	—	
Worcester . . .	105,050	36	16	2.86	11.44	—	—	2.86	
Nashville . . .	87,754	29	9	6.90	7.80	—	—	7.80	
Fall River . . .	96,919	28	18	10.71	32.13	10.71	—	—	
Lowell . . .	87,198	34	9	2.94	20.58	2.94	—	—	
Cambridge . . .	86,812	22	7	4.15	4.15	—	—	—	
Lynn . . .	65,220	14	3	14.28	7.14	—	—	—	
Charleston . . .	65,165	30	11	—	10.00	—	—	—	
New Bedford . . .	62,416	34	15	2.94	5.88	—	—	2.94	
Lawrence . . .	55,510	24	12	8.32	8.32	—	—	8.32	
Springfield . . .	54,790	16	6	—	18.75	—	—	—	
Holyoke . . .	42,384	9	4	11.11	11.11	—	—	—	
Portland . . .	40,000	—	—	—	—	—	—	—	
Salem . . .	36,062	4	1	—	—	—	—	—	
Brockton . . .	35,853	—	—	—	—	—	—	—	
Malden . . .	32,894	9	5	—	22.22	—	—	—	
Chelsea . . .	32,716	6	0	—	33.33	—	—	—	
Haverhill . . .	31,406	9	1	11.11	22.22	—	11.11	—	
Gloucester . . .	29,775	—	—	—	—	—	—	—	
Newton . . .	28,990	12	2	—	8.55	—	—	—	
Fitchburg . . .	28,392	11	2	—	22.22	—	—	—	
Taunton . . .	27,812	15	1	—	20.00	—	—	—	
Quincy . . .	22,562	—	—	—	—	—	—	—	
Pittsfield . . .	21,891	—	—	—	—	—	—	—	
Waltham . . .	21,812	2	0	—	—	—	—	—	
Everett . . .	21,575	7	2	—	—	—	—	—	
Northampton . . .	17,448	—	—	—	—	—	—	—	
Newburyport . . .	14,794	9	1	22.22	—	—	11.11	11.11	
Amesbury . . .	10,920	—	—	—	—	—	—	—	

Deaths reported 2,415; under five years of age 797; principal infectious diseases (small-pox, measles, diphtheria and croup, cerebro-spinal meningitis, diarrheal diseases, whooping-cough,

erysipelas and fevers) 237, acute lung diseases 421, consumption 257, diphtheria and croup 73, diarrheal diseases 35, scarlet fever 29, measles 24, typhoid fever 23, erysipelas 10, malarial fever 6.

Form scarlet fever New York 24, Baltimore, Boston, Cleveland, Brookline and Woburn 1 each. From measles New York 17, Baltimore and Pittsburgh 2 each, Washington, Cambridge and Lynn 1 each. From whooping-cough New York 11, Baltimore 3, Cincinnati, Pittsburgh and Charleston 1 each. From erysipelas New York 5, Boston 2, Baltimore, Cleveland and Washington 1 each.

In the thirty-three greater towns of England and Wales, with an estimated population of 10,992,524, for the week ending February 19th, the death-rate was 20.4. Deaths reported 4,384; acute diseases of the respiratory organs (London) 437, measles 189, whooping-cough 108, diphtheria 71, fever 34, diarrhea 33, scarlet fever 29.

The death-rates ranged from 13.9 in Preston to 29.0 in Wolverhampton; Birmingham 20.6, Bradford 19.9, Croydon 21.0, Gateshead 20.1, Hull 18.1, Leeds 17.1, Leicester 16.0, Liverpool 23.4, London 21.5, Manchester 20.5, Newcastle-on-Tyne 17.8, Nottingham 18.3, Plymouth 22.1, Sheffield 18.3, Sunderland 14.9, West Ham 15.6.

METEOROLOGICAL RECORD

For the week ending February 26th, in Boston, according to observations furnished by Sergeant J. W. Smith, of the United States Signal Corps:—

Date.	Barometer	Thermometer.		Relative humidity.		Direction of wind.		Velocity of wind.		We'th'r.		Rainfall in inches.	
	Daily mean.	Daily mean.	Maximum.	Minimum.	8.00 A. M.	8.00 P. M.	Daily mean.	8.00 A. M.	8.00 P. M.	8.00 A. M.	8.00 P. M.		
		Daily mean.	Maximum.	Minimum.	8.00 A. M.	8.00 P. M.		Daily mean.	8.00 A. M.	8.00 P. M.	8.00 A. M.		8.00 P. M.
S...20	30.27	33	34	33	86	90	88	N.E.	N.E.	28	22	O. R.	.57
M...21	29.90	36	38	33	100	100	100	N.E.	N.E.	9	18	R. R.	2.45
T...22	29.82	37	40	34	98	98	96	N.	N.W.	18	5	R. C.	.19
W...23	29.86	38	41	34	98	79	88	W.	W.	7	10	R. C.	.17
T...24	29.98	40	46	34	73	67	70	S.W.	S.W.	15	14	C. C.	
F...25	29.95	42	52	32	87	63	76	S.	W.	8	7	C. C.	
S...26	29.95	33	38	28	71	72	72	W.	N.W.	12	9	C. C.	

* O., cloudy; C., clear; F., fair; O., fog; H., hazy; S., smoky; R., rain; T., threatening; N., snow. † Indicates trace of rainfall. ———— Mean for week.

OFFICIAL LIST OF CHANGES IN THE STATIONS AND DUTIES OF OFFICERS SERVING IN THE MEDICAL DEPARTMENT, U. S. ARMY, FROM FEBRUARY 26, 1898, TO MARCH 4, 1898.

By direction of the President, MAJOR WILLIAM C. SHANNON, surgeon, will, upon the expiration of his present sick leave of absence, report in person to the President of the Army Retiring Board at San Francisco, Cal., for examination by the board.

OFFICIAL LIST OF CHANGES OF STATIONS AND DUTIES OF COMMISSIONED OFFICERS OF THE UNITED STATES MARINE-HOSPITAL SERVICE FOR THE FOURTEEN DAYS ENDING MARCH 3, 1898.

AUSTIN, H. W. To rejoin station Boston, Mass. February 21, 1898.

MAGRUDER, G. M., passed assistant surgeon. To proceed to Opelika, Ala., for special temporary duty. February 19, 1898. To proceed to Cartersville, Ga., for special duty. February 24, 1898.

NYDEGGER, J. A., passed assistant surgeon. To rejoin station South Atlantic Quarantine. February 18, 1898.

NORMAN, SEATON, assistant surgeon. Granted leave of absence for twelve days. February 19, 1898.

CLARK, TALIAFERRO, assistant surgeon. To report to medical officer in command, South Atlantic Quarantine, for duty and assignment to quarters. February 18, 1898.

BANKS, C. E., surgeon. Detailed as delegate to represent Service at National Pure Food and Drug Congress. March 1, 1898.

KINYOUN, J. J., passed assistant surgeon. Detailed as delegate to represent Service at National Pure Food and Drug Congress. March 1, 1898.

BROWN, B. W., passed assistant surgeon. To proceed to Birmingham, Ala., for special duty. February 25, 1898.

STEWART, W. J. S., passed assistant surgeon. To proceed to Fair Oaks, Ark., for special duty. February 23, 1898.

PARKER, H. B., assistant surgeon. To proceed to New York, N. Y., for duty and assignment to quarters. March 2, 1898.

BOARD CONVENED.

Board convened to meet at Washington, D. C., March 2, 1898, for the physical examination of officer of the Revenue Cutter Service, Surgeon C. E. BANKS, Chairman, and Passed Assistant Surgeon G. T. VAUGHAN, Recorder.

APPOINTMENT.

HERMAN B. PARKER, of Pennsylvania, commissioned as assistant surgeon, February 26, 1898.

SOCIETY NOTICE.

SUFFOLK DISTRICT MEDICAL SOCIETY. — The Section for Clinical Medicine, Pathology and Hygiene. There will be a meeting of the Society at 19 Boylston Place, Wednesday, March 16, 1898, at 8 p. m.

At 8 o'clock. Short communications by Drs. J. L. Ames and C. J. White.

At 8.30 o'clock. Dr. R. C. Cabot: "Recent Advances in Blood Diagnosis, with Lantern Demonstration." Dr. H. F. Hewes will open the discussion.

April 20th. Dr. A. K. Stone: Subject to be announced.

E. W. TAYLOR, M.D., Secretary, 416 Marlborough St.

WARNING.

We are informed that a man who represents himself as a medical man impoverished by misfortune, and who is at present visiting physicians in Boston and vicinity, and making pathetic appeals to them to purchase patent gas-lighters from him at \$1.50 apiece, in order to relieve his distress, is an imposter. The same gas-burners may be bought for thirty-five cents apiece in one of the large department stores.

BOOKS AND PAMPHLETS RECEIVED.

Silber als äusseres und inneres Antisepticum. Von Hofrath Dr. Credé, Divisionsarzt à la suite und chirurg. Oberarzt am Carolahause zu Dresden. Berlin. 1897.

Final Report to the Medical Society of the County of New York of its Committee on the Abuses of Medical Charity. Transmitted December 27, 1897. Reprint. 1898.

Abstract of the Proceedings of the New York State Medical Association, Fourteenth Annual Meeting held at New York, October 12, 13 and 14, 1897. Reprint. 1897.

A Case of Cerebral Abscess situated at the Posterior Part of the External Capsule. By Charles K. Mills, M.D., and Wm. G. Spiller, M.D., Philadelphia, Pa. Reprint. 1896.

Diseased Ova. Laparotomy for Diseases of Women from 1879 to 1889. Personal Experiences in Laparotomy. By Mary A. Dixon Jones, M.D., New York. Reprints. 1897.

Preliminary Report, Clinical and Pathological, of a Case of Progressive Dementia. By Chas. K. Mills, M.D., and Mary A. Schively, M.D., Philadelphia, Pa. Reprint. 1897.

An Obscure Case of Purpura Hemorrhagica with Infection by the Bacillus *Ærogenes* Capsulatus. By W. F. Hamilton, M.D., and H. B. Yates, B.A., M.D., Montreal. Reprint. 1897.

Some Experimental Investigations as to the Effects of the Administration of Yeast Nuclein upon the Leucocytes. By Alfred Scott Warthin, M.D., Ph.D., Michigan. Reprint. 1897.

The So-called Hot-Air Treatment of Painful and Partially Ankylosed Joints, and an Experimental Investigation of the Physiological Effect of the Local Application of Hot Air on General Metabolism. By Charles H. Frazier, M.D., Philadelphia. Reprint. 1897.

The Antivenomous Properties of the Bile of Serpents and Other Animals, and an Explanation of the Insusceptibility of Animals to the Poisonous Action of Venom Introduced into the Stomach. By Thomas R. Fraser, M.D., LL.D., F.R.S., Edinburgh. Reprint. 1897.

Twentieth Century Practice, An International Encyclopedia of Modern Medical Science. By leading authorities of Europe and America. Edited by Thomas L. Stedman, M.D., New York City. In twenty volumes. Volume XIII. Infectious Diseases. New York: William Wood & Co. 1898.

Deuxième Session de l'Association Française d'Urologie, Paris, 1897. Président, M. Le Professeur Guyon; Secrétaire, M. Le Docteur Darnis. Procès-Verbaux, Mémoires et Discussion, Publiés sous la direction de M. Le Docteur Darnis, Secrétaire-général. Avec 96 figures dans le texte. Paris: Octave Doin, Éditeur. 1898.

Treatment of Chronic Empyema of the Antrum of Highmore by Temporary Osteo-Plastic Resection of the Anterior Antral Wall. A New Method of Nerve Resection for Amputation-Neuroma. Lumbar Nephropexy without Suturing. A New Incision for Arthrectomy, Resection, and for Reduction of Irreducible Dislocation of the Shoulder-Joint. By N. Senn, M.D., Ph.D., LL.D., Chicago. Reprints. 1897-98.

Original Articles.

OBSERVATIONS ON MENINGITIS IN INFANTS AND CHILDREN.¹

BY A. H. WENTWORTH, M.D.,

Assistant in Diseases of Children and in Pathology in the Harvard Medical School.

EPIDEMIC CEREBRO SPINAL MENINGITIS.

Etiology.—A primary disease caused by the diplococcus intracellularis meningitidis. The manner in which infection occurs is still unknown. Nothing positive is known about the contagiousness of the disease, or the duration of the stage of incubation. The disease occurs epidemically and sporadically. It is rare in infants under one year, and in children occurs most frequently between the ages of three and ten years.

Pathology.—The lesions consist of an inflammation of the pia-arachnoid. The exudation is confined in the meshes of the pia; none is found on the surface of the arachnoid. In the most acute cases the exudation is slight in amount and purulent. In acute cases of longer duration there is more fibrin in the exudation. The pus cells are contained in the distended meshes of the pia. Large cells, derived from proliferation of the cells of the lymph-spaces and from the connective tissue corpuscles, appear. These cells are phagocytic and often enclose numbers of the exudation cells within them. In the very chronic cases the membranes are thickened. The exudation is slight in amount and is marked only by circumscribed whitish foci. The cells in these foci are degenerated and do not stain well. The ventricles are always distended. The ependyma is softened and frequently ragged. The fluid is cloudy and a small mass of fibrin or pus is always found in the posterior cornua of the lateral ventricles if the body has lain on the back.

The changes in the brain consist of softening and infiltration of the cortex with pus cells, which extend in from the meninges, and of foci of softening in the interior of the brain. There is also some proliferation of the neuroglia cells of the cortex. The exudation extends along the cranial nerves. The nerves most affected are the second, fifth and eighth pairs. The meninges of the cord are always affected and the exudation is found chiefly in the meninges of the lumbar cord over the posterior surface. The inflammation extends along the spinal nerves to the spinal ganglia. The changes in the interior of the cord are not so marked as in the brain. Degenerations are found in the cranial nerves and in the spinal nerve roots.

(The above description is a brief abstract of the pathological anatomy of the disease as given by Councilman, Mallory and Wright, "Epidemic Cerebro-Spinal Meningitis," etc.—Report of the Massachusetts State Board of Health, 1898.)

Symptoms.—Prodromal symptoms are usually absent. The onset is sudden and frequently severe. In most cases the earliest symptoms are headache, vomiting and fever. The latter may be quite high at first. Convulsions are not uncommon in young children at the onset, but they rarely occur later in the disease. Vomiting may be repeated several times, but usually ceases after the first day. The headache persists and is often very severe. The initial symptoms are rapidly followed by pain and tenderness in the neck and spine.

Often times these latter symptoms begin within twenty-four hours of the onset. At times they are not marked for two or three days. There is always more or less mental disturbance which may begin with the initial symptoms. It varies in intensity from apathy to unconsciousness. It is practically always present to some extent within twenty-four hours from the beginning of the disease.

Some patients become actively delirious, but as a rule they remain quiet and stupid unless disturbed. The pain and tenderness in the spine increase rapidly. The head is usually retracted and held rigidly. General hyperesthesia is a quite constant symptom and appears early. Variations in the degree of retraction, hyperesthesia and mental disturbance from day to day are characteristic of the disease. The temperature deserves especial attention. It is rarely more than moderately elevated and pursues a very irregular course. It is often below 103° F., and if it rises to 104° F. it rarely remains so longer than a few hours. Variations of several degrees are apt to occur from day to day. It may be classified as a remittent type of continued fever. The contrast between the severity of the nervous symptoms and the moderateness of the temperature is striking and characteristic. The pulse is usually higher than is commensurate with so moderate a fever. The respiration, as a rule, is somewhat increased in rate.

Dilatation of the pupils is very apt to occur within a day or two of the beginning of the disease. The reaction to light is usually slow and incomplete. Paralysis of one or more of the ocular muscles is common, but is often temporary, and the paralysis may affect different ocular muscles at different times. Paralysis of other portions of the body is uncommon during the course of the disease.

More or less conjunctivitis almost always occurs, and not infrequently severe lesions of the eyes, such as optic neuritis, iritis, and more rarely, choroiditis.

Deafness is not infrequent. The occurrence of herpes, usually about the mouth or on the cheeks, is observed in a number of cases after the disease has lasted for several days. Constipation is a constant symptom. After several days the abdomen becomes more or less retracted. The *tâche cérébrale* can be obtained in most cases. The urine not infrequently contains albumin, usually not more than a trace. Emaciation is a marked symptom in the cases in which the disease lasts longer than a few days. In most of the cases which end fatally, the patients die quietly notwithstanding the severity of the symptoms which precede the fatal termination.

Complications.—The commonest complications are lesions of the eyes and ears. The lesions in the eyes result from extension of the inflammation along the optic nerves often causing optic neuritis and atrophy. The resulting blindness may be partial or complete. Some of these cases recover their sight, to some extent, even after the occurrence of symptoms of optic atrophy. The lesions in the ears are due to extension of the inflammation along the auditory nerves, and may result in total and permanent deafness. Quite a number of cases have acute inflammation of the middle ear. The inflammation is said to be caused by the diplococcus intracellularis in some cases. If this is true, it is probable that the organisms reach the middle ear through the Eustachian tube because the diplococcus intracellularis has been found in the nasal cavities in

¹ From the Sears Pathological Laboratory of the Harvard Medical School.

some cases. Lesions of the lungs are not common but focal pneumonias have been found in some cases. In some of these cases the diplococcus intracellularis has been found, but other pathogenic organisms are generally present. Lesions of the heart and kidneys are very uncommon. General infection by the intracellular diplococcus is practically unknown. Now and then joint lesions are observed, consisting of swelling, redness of the skin and pain. The nature of the lesions is not known. The symptoms usually subside after a day or two.

Several well-marked types of the disease occur. They have been classified as foudroyant, acute, intermittent, chronic and mild cases.

Foudroyant cases begin with the same sudden and usually violent onset of fever, headache and vomiting and perhaps convulsions. These symptoms are rapidly followed by stupor, and even unconsciousness in some cases. There is usually high temperature; a very rapid pulse; a grayish septic-looking color of the skin; oftentimes multiple small hemorrhages into the skin; and death in a comparatively few hours. Retraction of the head and rigidity and pain in the spine may or may not be present in these cases. The clinical picture may resemble septicemia or toxemia more than meningitis, and death may occur before macroscopic evidences of exudation appear in the meninges, so that at autopsy, one finds simply excessive injection of the vessels and edema of the meninges. Microscopically, however, one detects the evidences of inflammation by the presence of leucocytes infiltrating the meshes of the pia; more or less coagulated serum and fibrin; and a varying number of red corpuscles.

CASE I. Female, five years old. Entered the hospital at 3.15 A. M., April 18th, in a moribund condition. The history stated that she was taken ill at 7 o'clock in the morning of the day previous with convulsions and fever. At 10.30 A. M. of the same day numerous small spots were observed in the skin of the body and to some extent on the extremities. At 11 A. M. of the same day there was a second convulsion. The child was brought to the hospital in a dying condition. Rigor mortis was present in the ankles. No heart-sounds could be heard. The child gasped a few times and died.

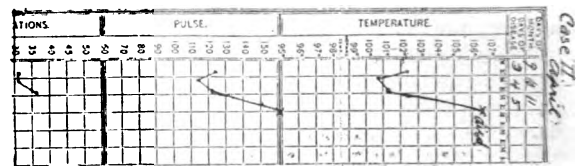
Two minutes after death rigor mortis was present to a marked degree in both arms and in the muscles of the neck and thighs. Subcutaneous hemorrhages, varying in size from one-half a centimetre or less, to several centimetres in diameter, were thickly distributed over the body and to some extent on the extremities. Lumbar puncture showed a somewhat cloudy fluid. No autopsy was obtained. The duration of the illness was about nineteen hours.

Acute cases run their course in from two to ten days. Quite a large proportion of them end fatally. One observes individual variations, some cases present symptoms which are absent in others. In general, however, the sudden onset with vomiting, headache, fever, pain and tenderness in the neck and spine, retraction of the head, hyperesthesia and varying degrees of mental disturbance from apathy to unconsciousness are present in all. The temperature is usually moderately elevated and irregular in type. The pulse-rate is more or less increased. In some cases which end fatally, the temperature rises before death several degrees higher than at any preceding time. In cases which recover, the temperature falls gradually and the symptoms subside after several days, and the patient appears to make a complete recovery. If severe lesions of the eye and auditory nerve have occurred

the blindness and deafness may be permanent, although marked improvement has occurred in a number of cases of severe optic neuritis. The lesions of the auditory nerve are not so likely to show improvement.

CASE II. Female, eight years of age. Entered the hospital April 9th, with a history of two days' illness. A history of the onset of the disease could not be obtained. This case was selected as a type of the acute form of epidemic meningitis because notwithstanding the absence of any history the course of the disease was perfectly characteristic, and it was one of the few cases in which an autopsy was obtained.

A physical examination made at the time of entrance is as follows: "The patient is somewhat under-developed and emaciated. The mucous membranes and skin are pale. There is no efflorescence on the body or extremities. There is considerable stupor. The child lies on her side with the head very much retracted and held rigidly. There is extreme hyperesthesia over the spine. The legs are drawn up. The pupils are widely dilated and react imperfectly to light. There is no strabismus. The tongue is coated. The throat is negative. The heart and lungs show nothing abnormal. The abdomen is retracted. The *tâche cérébrale* is present. The liver and spleen are not enlarged."



Some hours after entrance into the hospital and during the following two days the patient was very restless and often delirious. The head remained constantly retracted. There was considerable general hyperesthesia in addition to that of the spine. Considerable muco-purulent secretion gathered in the eyes. No efflorescence appeared on the skin. During the last twenty-four hours the patient was practically unconscious. At midnight of the 11th of April the rectal temperature registered 106.8° F., and the pulse was 170. From that time until the morning the patient grew quieter and weaker, and died quietly at 6 o'clock, after an illness of five days.

Lumbar puncture showed a very turbid fluid, in which a puriform sediment quickly settled to the bottom of the test tube. Microscopic examination showed the exudation to consist of polymorphonuclear leucocytes and fibrin. Many of the cells contained diplococci, which decolorized by Gram's stain. Cultures on blood serum showed a very profuse growth of the diplococcus intracellularis. The growth was so excessive that the whole surface of the serum was covered in twenty-four hours and separate colonies were not distinguishable. Transplants from the original culture showed typical colonies of the diplococcus. The organisms decolorized by Gram's stain.

Autopsy by Dr. F. B. Mallory. Slender emaciated girl. The head shaved. The abdomen is below the level of the thorax.

Brain. On removing the dura the surface of the brain on the left side shows a marked infiltration of the meshes of the pia with a yellow opaque exudation, thick enough to hide the convolutions beneath. The exudation is most marked along the course of the larger blood-vessels. On the right side, over the upper half of the brain, the exudation is much less in amount, and is largely serous in character and translucent, so that the brain tissue can be easily seen. The exudation is thickest along the longitudinal fissure on both sides about half-way down to the corpus callosum. At the base of the brain the exudation is most marked on the right side, particularly in the fissure of Sylvius. Quite a collection of exudation lies just back of the optic commissure. There is very little around

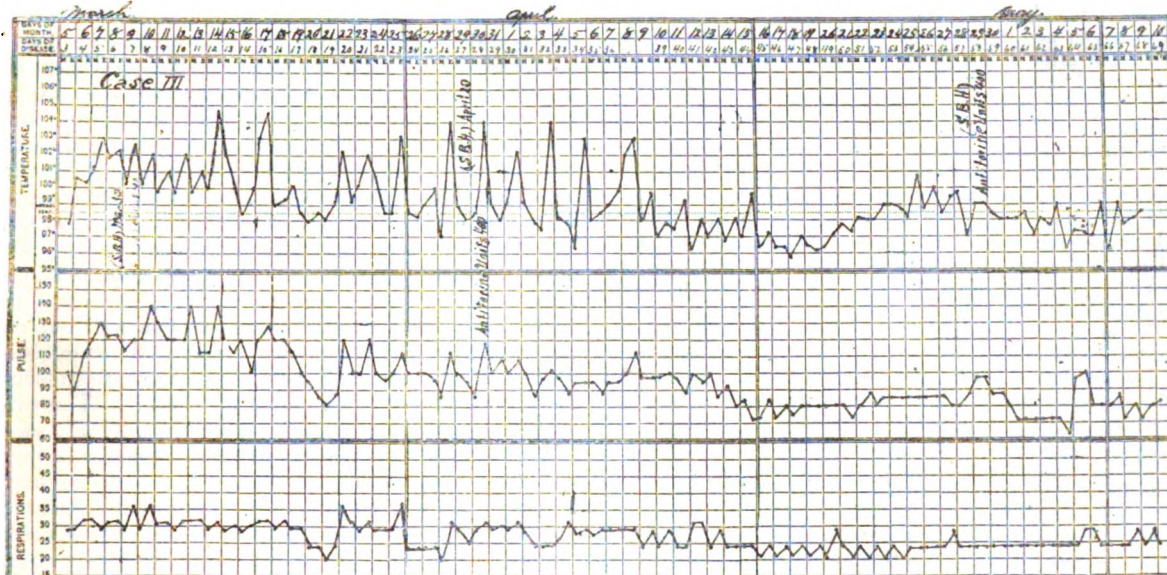
the cerebellum, which shows marked injection of the blood-vessels. It is difficult to remove the exudation even with forceps. The serous portion flows away readily, but the cells are held in a firm mesh-work of fibrin. Both lateral ventricles contain a cloudy fluid, and in the posterior cornua there is a considerable collection of soft purulent material. The meshes of the pia over the cord are infiltrated in a like manner, particularly over the posterior surface. The exudation is yellow and opaque and completely hides the cord. The inner surface of the dura, both of the brain and cord, is pink in color, due to injection of the vessels. Considerable cloudy fluid escaped from the dura of the cord when it was opened.

Body. The peritoneal, pleural and pericardial cavities are normal. The heart contains clotted blood, but is not abnormal. The lungs are light and crepitant. The right lung is adherent at the apex by a few fibrous adhesions; there are a few small areas of atelectasis in the lower portion. The spleen is of normal size; on section the follicles are not visible. There is apparently no increase in the pulp, although the organ is slightly softer than normal. The kidneys show some opacity of the cortex and contrasts with the injected pyramids. The liver is normal. The stomach and intestines are normal.

Microscopic examination of the exudation in the meninges of the brain and cord show broad diplococci in

from five to fifteen times larger than a leucocyte. There is little if any change in the intima of the arteries. In addition to the purulent inflammation of the pia there is some proliferation of the fixed cells, the nuclei of which are vesicular and large and either oval or spindle-shaped. There is very little hemorrhage. The nuclei of the pus-corpuscles stain well, and in the protoplasm of many of them one finds one or more diplococci. There are no evidences of extension of the exudation from the pia into the brain substance. The neuroglia cells are not increased and no changes are apparent in their nuclei. A similar purulent inflammation is present in the pia of the cord, but the quantity of exudation is less and is confined largely to the portion of the pia covering the posterior part of the cord. The changes in the cord, if any, are insignificant.

Intermittent cases differ from acute cases in having one or several acute exacerbations with intervals of several days between. During these intervals the severe symptoms disappear and the patient appears to be much better. The temperature may be normal, or remain more or less elevated, but the pain and tenderness subside; the intelligence becomes normal and the patient appears to be convalescing. This is followed by a return of the acute symptoms: retraction, stupor,



small numbers, usually within the pus cells; occasionally a cell is found containing them in large numbers.

Cultures from the brain and cord show numerous small, translucent, slightly-elevated colonies. Cover-slip preparations show the presence of diplococci, often in the form of tetrads and occasionally in chains. The organism decolorizes by Gram's stain, *diplococcus intracellularis meningitidis*.

Microscopic Examination by Dr. Wentworth. Portions of the brain and cord were hardened in Zenker, mounted in paraffin and stained with Unna's polychrome methylene-blue. The pia-arachnoid is infiltrated with pus corpuscles. There is very little fibrin present. The meshes of the pia, where visible, are distended. In many places the structure is hidden or destroyed by the purulent inflammation. There is not much coagulated serum to be found. There are numerous very large cells, mostly in the vicinity of the blood-vessels. These cells are several times larger than a leucocyte and many of them contain leucocytes, blood-corpuscles and granular detritus in their protoplasm. Many of them are vacuolated. In some a large oval vesicular nucleus is visible, usually at one side; in many no nucleus is apparent. These cells, roughly speaking, are

tenderness, fever, etc., which last for several days as before. Sometimes two or more of these acute exacerbations occur. The intervals between the exacerbations rarely exceed a few days, oftentimes not longer than two or three; but a guarded prognosis should be given in all acute cases of epidemic meningitis for at least two weeks after the cessation of active symptoms.

Some cases die during an acute exacerbation; others recover after one or more attacks and in some cases a chronic form of the disease develops which may terminate fatally or be recovered from. Emaciation is a marked symptom in the intermittent cases.

CASE III. Male, eight years old. Entered the hospital March 5th. The patient was taken ill suddenly three days before with vomiting, headache, fever, and pain in the stomach. There was no history of retraction of the head. The physical examination at the time of entrance is as follows: "The patient is well developed and nourished, there is considerable apathy. The head is held rigidly, but is only slightly retracted. There is considerable hyperesthesia along the spine and to some extent of the extremi-

ties. The pupils are not dilated and react to light. There is no efflorescence on the body or extremities. The throat is negative. The heart-sounds are not abnormal. Nothing abnormal is detected in the lungs. The liver and spleen are not enlarged. The abdomen is not retracted. There is no albumin in the urine."

On the following day the head was retracted and the boy cried from pain in the neck. During the night he was delirious and restless. The head remained retracted for three days. The hyperesthesia continued to some extent for three or four days longer. After the first three or four days the patient was not so stupid, but was inclined to lie with the eyes closed most of the time.

On the sixth day of the disease lumbar puncture was performed and a very turbid fluid was withdrawn, which contained numerous pus corpuscles and fibrin. Diplococci were present in many of the cells. (The writer is unable to find his records of the bacteriological examination of this case, but is under the impression that this was one of the earlier cases in which he failed to obtain a growth of the organism from cultures of the spinal fluid because too little of the fluid was used.)

After the ninth day of the disease the patient did not complain of pain and seemed comfortable unless considerable pressure was applied to the spine. He lay most of the time quietly in bed and slept a great deal of the time. On the fourteenth day he complained of pain in the left elbow. On the following day the left elbow was swollen and tender and the skin was reddened. These symptoms subsided after a few days. From the fourteenth to the eighteenth day of his illness the cerebral symptoms were marked, although the temperature was considerably elevated for but one day. He was quite stupid, and cried out when touched, especially in the neck and spine. From the eighteenth to the twentieth day he was still quite sensitive to touch, but was not so stupid and had less pain in the head and neck. On the twenty-fourth day of illness there was no rigidity or pain or tenderness in the neck. The intelligence was normal. He took food well and seemed quite comfortable. By this time the emaciation was quite marked.

From the twenty-sixth to the thirty-sixth day of illness, sudden and high rises occurred in the temperature on alternate days. During the days of fever the patient was drowsy and complained of fever and of not feeling well. During the intervening days there were no marked symptoms of any kind. An examination of the blood for malarial organisms was negative. Lumbar puncture showed the spinal fluid to be much less turbid than on two previous punctures, although it still contained numerous pus corpuscles and considerable fibrin and occasional lymphoid cells. From the thirty-eighth day of illness until his discharge from the hospital the temperature remained normal or subnormal.

Constipation was a constant symptom throughout the disease until the last two weeks. During the sixth week of illness the patient sat up in bed. The pallor and emaciation were extreme. There was considerable weakness of the extremities, but no paralysis. No complication occurred in the eyes except slight conjunctivitis during the early part of the disease. The ears and heart were normal. He was discharged well after 68 days. There were no active symptoms after six weeks. In addition to the usual variation in the intensity of the cerebral and spinal symptoms the patient had one typical relapse.

(To be continued.)

AN ANACHRONISM.—Professor Peck, of Columbia University, in a review of "Quo Vadis" says: "There is an anachronism involved in the introduction at the end of the ninth chapter of a freedman 'with his face marked with small-pox'; for no mention of small-pox in Europe is found till four hundred years after the period described in 'Quo Vadis,' and no Roman author speaks of such a disease." — *Medical News*.

REPORTS OF CASES OF OPERATIONS ON THE UTERUS AND ADNEXA THROUGH THE VAGINA: DUHRSSSEN'S METHOD.

BY WILLIAM N. SWIFT, M.D., NEW BEDFORD, MASS.

THE method of opening the peritoneal cavity that I have employed in the following cases is practically the one described and practised by Professor Dührssen, of Berlin. The parts are shaved and the vagina washed with soap and scrubbed with a brush, then scrubbed with a solution of creolin liq. potass. and green soap, douched with sterile water, and finally with a solution of corrosive sublimate (1 to 4,000). The cervix is then dilated, curetted with a sharp curette, afterwards with a douche-curette, and washed out with corrosive-sublimate solution (1 to 10,000). The anterior lip of the cervix is then seized with the fixture. This instrument, as used by Prof. A. Martin, consists of a stout sound behind and a pair of stout double right-angle hooks in front, set on a broad surface. The sound is inserted into the uterine canal, the double hooks into the anterior lip of the cervix, which is compressed between the two. The uterus is then brought down as far as possible and held forward.

An incision about half an inch long is then made through the vaginal mucous membrane at the upper border of the anterior lip of the cervix. One must be careful not to make this incision too high up, for in pulling down the uterus the bladder is displaced and may be wounded. This incision is prolonged with scissors about half an inch on each side. A double tenaculum is put on the vaginal mucous membrane at the centre of the incision, and traction made upwards. The bladder is then separated from the uterus by the finger, aided at times by the closed points of the scissors.

It is important to carry the dissection well out on each side so as to have the ureters as well as the bladder out of the way. By keeping close to the uterus there is no danger of wounding the bladder. This dissection is carried as far as the internal os. It is a mistake to strip off the peritoneum from the uterus further up than this point. The fold in the peritoneum may be felt by the finger against the anterior surface of the uterus, and in most cases may be seized between the thumb and finger. An artery clamp is then put on the peritoneum and the peritoneal cavity opened by a small snip with the scissors as near the uterus as possible. Artery clamps are then put on each side of the opening in the peritoneum and the bladder dissected away from the peritoneum still further. As the bladder is pushed away, the peritoneum is slit up and clamps put on each side as guides. A pair of double hooks are put on the vaginal mucous membrane about half an inch below the urethra. The middle point of the vaginal mucous membrane in the transverse incision is seized with forceps. Traction is made with both instruments, and the ridge made in the mucous membrane is slit up with scissors. The triangular flaps of vaginal mucous membrane formed by the transverse and longitudinal incisions are then dissected away from the bladder. This usually peels off easily with the shut points of the scissors. If vaginal fixation is to be done the sutures are then inserted on each side through vaginal mucous membrane and peritoneum. I began by using silkworm-gut, but since my first two cases have used catgut, the silkworm-gut being rather troublesome to remove. This incision gives a wound

extending from the cervix nearly to the urethra, and laterally about an inch on each side of the cervix.

The examination of the uterus and adnexa is next made. The uterus is then seized with stout double hooks; I much prefer right-angle hooks as they do not pull out so readily. The fixture is removed and the cervix pushed back with the speculum. The uterus is then delivered through the wound, any adhesions being separated at the same time with the finger. When the uterine tissue is soft, the double hooks may tear out several times before the uterus is finally delivered. The first hooks inserted are usually too low and the uterus has to be seized several times before it is pulled out. In this manipulation the uterine tissue may be a good deal torn. The tears should at once be sewed up with a fine needle and catgut. No ill effects come from these so far as I have seen. This gives ready access to the uterus, tubes and ovaries, either for their removal or for the excision of diseased portions. The tubes may be probed and small cysts of the ovaries opened and curetted. After whatever is indicated has been done the fixation suture on each side is passed around the round ligament at its base close to the uterus. The uterus is then replaced and the end of the fixation suture on each side is passed through the peritoneum and the vaginal mucous membrane. The rent in the peritoneum should then be united with a continuous suture of fine catgut. If this be done, no raw surface is left, and the adhesions holding the uterus forward will only be between the two layers of peritoneum. The wound in the vagina is then sewed up with a continuous catgut suture. Amputation of the cervix may be done if indicated. Finally, the fixation sutures are pulled tight and tied.

The chief advantage of the vaginal route is that it is a much less serious operation than abdominal section. The intestines are hardly seen. When the peritoneal cavity is opened a gauze sponge is pushed in on a holder and the intestines are not seen again. There is no abdominal scar, with risk of hernia. The patient has much less discomfort immediately after the operation. She can turn on her side at once and is usually up in two weeks. Another great advantage in this operation is the ease with which any operation can be done on the tubes and ovaries after they are delivered.

Where the operation can be done easily there can be no question but what it is much to be preferred to the abdominal route. A small vagina makes the operation difficult even with lateral incisions. The uterus may be so large that it fills the whole vaginal wound when it has been delivered. This makes it impossible to get at the adnexa without removing the uterus. A fixed uterus that cannot be drawn down at all makes this operation impossible. By bisecting the uterus it is possible to remove very large inflammatory masses.

The Landaus, in Berlin, hold that all cases of inflammatory pelvic disease should be attacked through the vagina and hysterectomy done if necessary. Martin and Dührssen are more conservative, and operate on large masses through the abdominal wall. Martin passes his fixation sutures through the uterine tissue, but in women who are likely to become pregnant not above the internal os. Instead of opening the peritoneum with scissors he simply pushes his finger through it and does not attempt to sew it up separately.

I saw a number of cases last winter in Berlin, of women who had become pregnant after the operation

of vaginal fixation. In every one of these cases the uterus was freely movable and the patients did not complain of pain. I have never seen after the vaginal operation any bladder disturbance or any tenderness of the vaginal scar tissue that has been mentioned by some writers.

CASE I. Mrs. S. B., twenty-seven years, married, two children, the youngest one year. Menstruation irregular and very painful. Examination showed patient very anemic. Large retroflexed uterus, very tender. Mass in region of left ovary.

Operation, August 2d. Usual incision made in front of the cervix and bladder separated from uterus. Plica opened with scissors. The uterus was retroflexed and bound down by adhesions easily broken up. It was delivered without difficulty through the vaginal incision. The left broad ligament was somewhat thickened, the left ovary and tube prolapsed and adherent. The right ovary contained a cyst the size of a walnut. The left ovary and tube were freed from adhesions; the right tube and ovary were removed. The uterus was fixed by ligatures passed on the right side through the stump of the tube and on the left around the round ligament near its insertion into the uterus. The peritoneum was sewed up with catgut. All the tissues were soft, owing to an infiltrated condition, and the hemorrhage was more than usual. Patient did perfectly well.

On the second day after the operation passed urine, the first three or four times with some pain. Bowels were moved on the second day, and the patient walked out in two weeks after the operation. At present the uterus is in normal position. No tenderness in pelvis. Vaginal wound not tender. No difficulty or pain in micturition. Patient's general condition much improved, but complains of pains in various parts of the body. She has menstruated regularly without pain.

CASE II. Mrs. L. R., twenty-one years, married two months. Probably gonorrhea two years before; since that time more or less pelvic pain and very marked pain at menstrual periods. Since being married has had great pain across lower part of abdomen.

Flowing most of the time but not profuse. Coitus so painful that it became impossible. Examination showed uterus much enlarged and very sensitive, retroflexed and somewhat towards the left side. Enlarged tubes felt on both sides.

Operation, August 9th. Bladder separated from uterus without difficulty. Plica opened with scissors. Extensive adhesions over fundus of uterus and tubes. The uterus was seized with double hooks and delivered through the wound with some difficulty. The left tube and ovary were firmly adherent. The tube was freed from adhesions, and on being opened was found to be entirely disorganized and occluded. It was removed but the ovary was left, as it was normal. The right ovary and tube were bound down by strong adhesions. The ovary contained one large and many small cysts. On section it showed no normal tissue. The tube was also much thickened, and both ovary and tube were removed. The uterus was fixed by three silkworm-gut sutures through the vaginal peritoneum, uterus itself, then peritoneum and vagina on the other side. After these sutures had been put in place the peritoneum was sewed up with a continuous catgut suture and later the wound in the vagina.

After coming out of ether the patient showed no symptom of shock. She passed urine on the morning of the second day.

Examination at present shows no tenderness over scar in vagina. Uterus small, in normal position, not tender. Some tenderness over left ovary, which can be plainly felt. Patient feels well and has gone to work. Coitus not painful. Has menstruated regularly and with only slight pain over region of left ovary.

The retention of the left ovary when the tube was removed is an interesting point in this case. I think the mental effect of the continuance of menstruation in such a case is important.

CASE III. Miss E. B., thirty-six, single. Much pain in lower part of abdomen. Pressure in pelvis. In March curetted and hemorrhoids removed. Uterus retroverted and somewhat fixed.

Operation, August. Fundus large. Slight adhesions, easily separated. Uterus delivered with difficulty. Tubes and ovaries normal. The fixation sutures were passed through the uterus below the internal os. A small vagina made the operation difficult. The tissues were soft and hemorrhage was quite free. Patient passed urine the morning of second day; she did well, and was up in two weeks. At present patient is much improved. Uterus in normal position; fundus freely movable. Scar in vagina not tender. No difficulty with micturition.

CASE IV. Mrs. A. S., forty-eight years, married. Prolapse for twenty-five years, since the birth of first child. Has been getting worse, and for two years has suffered a great deal. Has had considerable hemorrhage and not been able to work. Examination showed complete prolapse of enlarged uterus. Complete rupture of perineum and tear in rectum for about two inches. The cervix was enormously hypertrophied and ulcerated about the cervical canal.

Operation, September 18th. Cervix dilated and canal curetted. The usual transverse incision was made, and the bladder was dissected from the uterus. The reflection of the peritoneum from the uterus was very high up, caused no doubt by the prolapse. The peritoneum was opened with the finger. The uterus was easily delivered. The fundus as compared with the cervix was small. The tubes were normal. The ovaries both contained small cysts that were punctured and curetted. Fixation sutures were passed around the bases of the round ligaments. The anterior and posterior lips of the cervix were amputated high up. A large flap of vaginal mucous membrane was cut away on each side to narrow the vagina in front, and the perineum repaired by Simon's operation as modified by Dührssen.

The patient did well in every respect. The result is exceedingly good. The uterus is small, in normal position, and does not descend with hard straining. The vagina is small, with good perineal body and control of sphincter.

CASE V. Mrs. M. N., thirty-seven years. Six years before, at birth of child, had perineum lacerated to sphincter; since two years complete prolapse. Not able to work.

Operation, September. The peritoneum was opened in the usual way without difficulty, and the uterus delivered. Fixation sutures were passed around the bases of the round ligaments on both sides. A large piece of vaginal mucous membrane was cut away on each side of the vaginal incision in front to narrow the vagina. The cervix was amputated high up and a Simon's operation done to repair the perineum.

At present the uterus is small, in normal position and high up. The result is very good on the perineum.

CASE VI. Mrs. L. M., twenty-six years. Entered hospital flowing after an abortion at two months. Uterus very large and flabby. Curetted. Flowing stopped, but uterus very tender and impossible to keep it in normal position.

Operation, two weeks later. Usual incision made. Bladder separated from uterus. Perineum opened with scissors. Uterus delivered with some difficulty owing to its size. Small cysts in both ovaries were punctured and curetted. Tubes normal. Fixation sutures were passed at base of round ligaments. Cervix amputated high up. Patient much improved in general condition. Uterus in good position, much smaller, and pelvic tenderness relieved.¹

CASE VII. Miss M. E. B., forty-two years. Patient in last six months has had four attacks of pelvic peritonitis. Almost constant pelvic pain and much pain at menstrual periods. Much gastric disturbance. Patient well nourished, but rather flabby. Examination showed prolapse, cervix protruding from the vulva; which patient states dates from a fall when she was about fifteen. Cervix much hypertrophied. Fundus fixed, with large mass in right iliac fossa.

Operation, November 18th. The incision in the vagina was made as large as possible. The reflection of the peritoneum was high up. The fundus was delivered with some difficulty, owing to the large size of the uterus and the extensive adhesions. Examination showed very extensive adhesions all about the pelvis. A cyst about the size of a good-sized orange on the right side. It was impossible to deliver the tubes and ovaries through the vaginal incision, owing to the large size of the uterus. The uterus was bisected and clamps put on the left broad ligament. The left side of the uterus, ovary and tube were then cut away. The cyst on the right side was next opened and the broad ligament clamped outside of it. The cyst and the right tube were then excised. A small piece of sterilized gauze was put between the clamps.

The patient did well. The clamps were removed in forty-eight hours and the gauze on the fifth day. Patient passed urine on the third day. On the seventh day, when the nurse was out of the room, the patient got up and walked across the room. When the nurse came back the patient was sitting in a chair. On the eleventh day after the operation the patient drove to her home, about four miles, without any ill effects. At the end of three weeks the vagina had healed perfectly, and there was no tendency to prolapse. The patient has relief from pelvic pain and tenderness.

HORSESHOE KIDNEY SIMULATING MALIGNANT DISEASE OF THE ABDOMEN.—A case in which a tumor in the epigastrium in a man of fifty-seven, who was suffering from local pain, dyspepsia and emaciation, proved in operation to be a horseshoe kidney, is reported by Oliver, of Newcastle-upon-Tyne, in the *British Medical Journal* for February 26th. Before exploratory laparotomy a probable diagnosis of malignant disease was made. The therapeutic result of the exploratory laparotomy was excellent.

¹ The patient is at present three months pregnant. The uterus is in normal position and the fundus freely movable. Patient complains of some backache. Two weeks ago, after a hard day's washing, had a slight hemorrhage. None since that time.

THE RELATION OF THE URETERAL CATHETERS TO THE SURGERY OF THE KIDNEYS IN WOMEN.

BY EDWARD REYNOLDS, M.D., BOSTON.

On looking over my clinical records I find that during the last three years I have catheterized the ureters for supposed surgical disease of the kidneys seventeen times, all the patients being women. I do not intend to inflict upon you the history of the seventeen cases, nor even of all the operative cases. I propose, instead, to limit myself to a statement of the conclusions which my experience has led me to adopt, and to explain those conclusions by brief outline reports of the salient features of a few of the cases which best illustrate my positions.

Of the various methods of ureteral exploration of the kidneys in women, the study of the separated urines of the two kidneys takes the chief place, and furnishes us with a method of physical examination of the kidneys which is so far accurate and safe that the ureteral catheters occupy to the surgery of the kidneys in women much the same relation which the stethoscope has so long held to the medical diseases of the chest.

The importance of this examination rests upon the fact that it enables us to isolate the disease and to determine with certainty not only which kidney is affected, but exactly what the condition of each kidney is. The points which I think especially worth illustrating are:

(1) The symptoms may be transposed, that is, the pain and tenderness may be referred by the patient to the comparatively sound kidney.

(2) There may be a transitory inflammatory affection of the sound kidney which should lead us to defer operation until it has passed away.

(3) The choice between nephrotomy and nephrectomy, and sometimes the decision as to whether any operation is or is not permissible, should be decided by a comparison of the relative condition of the two kidneys.

(4) In cases of renal calculus, the question between nephrolithotomy and nephrectomy must depend largely upon whether the condition of the affected kidney affords a prospect of good healing and a useful kidney after nephrotomy.

CASE I. Mrs. H., seen October 13, 1896, with Dr. Hayes, of Williamsburg, Mass. Much emaciated and very weak. Has had frequent micturition and foul urine ever since an acute febrile attack twenty years ago. Passed two small stones, a few weeks apart, six years ago. Had a sharp hemorrhage from the bladder nine months ago. Is conscious at intervals of sharp pains underneath the right false ribs. There is tenderness on palpation over the right renal region; and on vaginal examination the vesical end of the right ureter is decidedly thickened and very sensitive. A provisional diagnosis of stone in the right kidney seemed clear. But catheterization of the ureters on the following day showed that the right kidney was secreting a nearly clear urine, while the left yielded only the foulest pus that I have ever seen. The specimens were submitted to Dr. J. B. Ogden, who reported that the fluid obtained from the left side was a degenerated pus almost unmixd with urine, and containing but .57 per cent. of urea. He further found that although the urine of the right side contained a fair amount of urea (1.64

per cent.) it also contained considerable pus, many small round cells, and hyaline and granular casts with fat and degenerated epithelium adherent, the evidences of a sub-acute pyelo-nephritis.

RIGHT KIDNEY.—May 12, 1897. Color, slightly pale and turbid. Reaction, faintly acid. Albumin, one-eighth per cent.

Sediment. Considerable. A few pus corpuscles free and in occasional clumps. Few squamous cells and blood globules. Few small round cells, an occasional one of which is fatty. Occasional hyaline and granular cast of small diameter with little blood and a fat globule adherent. An occasional cell as from ureter and renal pelvis. Urea, 1.33 per cent. Amount of urine received, 8 c. c.

LEFT KIDNEY.—May 12, 1897. Color, pale, turbid. Reaction, faintly acid. Albumin, one-fourth per cent.

Sediment. Much. Large amount of pus, much of which is degenerated. Many small round cells, some fatty. Some blood. Few squamous cells (probably bladder). Urea, 0.38 per cent. Amount of urine received, 6 c. c.

If the one kidney which the woman possessed was in this condition, it was evidently no time for an operation. I washed out the pus sac which represented the left kidney through the ureter, and sent her home for medicinal treatment. Six months later she returned, and a fresh examination of the separated urines showed that while the relative importance of the two kidneys remained about as before (.38 per cent. and 1.33 per cent. of urea), the right was now in substantially normal condition. Its sediment showed only an occasional hyaline cast of small diameter.

RIGHT KIDNEY.—October 15, 1896. Color, pale. Specific gravity, 1.014. Reaction, faintly acid. Albumin, large trace.

Sediment. Considerable. Chiefly squamous epithelium. Considerable pus and normal blood. Numerous small round cells, few fatty. An occasional hyaline and granular cast with little fat and degenerated renal epithelium adherent. Urea, 1.64 per cent. Amount of urine in forty minutes, 26 c. c.

LEFT KIDNEY.—October 15, 1896. Color, turbid. Specific gravity, 1.008. Odor, fetid. Reaction, alkaline. Albumin, one-fourth per cent. Globulin present in considerable amount.

Sediment. Much. Chiefly degenerated pus. Numerous small and medium round cells, few fatty. An occasional abnormal blood globule. Two doubtful granular casts seen. Urea, 0.57 per cent. Amount of urine in forty minutes, 13 c. c.

BOSTON, October 17, 1896.

MY DEAR DOCTOR:—The enclosed reports of urines from right and left ureters, show on the left, evidence of a chronic pyelitis and probably more or less destruction of the kidney, for the percentage of urea is very low. I found no crystalline elements to indicate the possibility of a stone. The foul urine found in the bladder was probably made fetid by the urine from the left side. On the right the squamous epithelium and I presume the pus, comes from the bladder. There is evidence of some renal disturbance on this side and I think it is probably secondary to the trouble on the left. This kidney is doing a good amount of work as shown by the urea.

Yours very truly,

J. BERGEN OGDEN.

P. S. Will send report of examination for tubercle bacilli in a few days.

I again washed out the affected kidney, cut down upon it, and removed a large stone; the nephrectomy which was plainly indicated by the local state being contraindicated by the patient's extremely bad general condition. The mere nephrotomy was followed by some days of quite alarming weakness, but the patient eventually made a good recovery.

This case was chosen because it illustrates three of the four points which I wish to make, better than any other single case that I have had and I wish to avoid taking up too much time with reports of cases:

(1) The symptoms may be transposed and referred to the sound side.

This case had the typical symptoms of renal stone. Abdominal palpation was negative; but the symptoms were referred to the right side, which would ordinarily be considered a quite sufficient justification for an oper-

ation upon the right side, and yet she had no functional kidney upon the left side, and the efficient kidney which she had upon the right was in a state of acute inflammation. There can be no question of the result which would have followed an operation upon that right side, nor of the importance of the ureteral examination to this patient; and, although I believe such cases of transposition of symptoms to be rather uncommon, it is still worth while to save the lives of even a few patients. That the case is not unique is shown by the existence of another similar instance in this small list of seventeen cases.

(2) There may be a transitory inflammatory affection of the sound kidney which should lead us to put off the operation.

We know that the existence of suppurative disease in one kidney is always a menace to the health of the other side, and as I have several times found a mild and transitory pyelitis on the sound side which easily cleared up under medicinal treatment, I am inclined to emphasize the importance of always determining the condition of the comparatively sound kidney a few days before operating. The value of such a procedure is, I think, well shown in the case quoted.

(3) The choice between nephrotomy and nephrectomy, and sometimes the question whether any operation is desirable or not, should be decided by the comparative condition of the two kidneys; in this the condition of the sound kidney is not the only question worthy of an answer. It is also of some importance to know the functional value of the affected kidney, since if it is so far degenerated that all the patient's needs are provided for by the other side, its complete removal is a far less serious matter than if it is still performing a large share of its duty. It will be seen that this point is of considerable importance in determining the choice between nephrotomy and nephrectomy, and may even determine the question of whether a feeble patient is or is not in condition to withstand any operation, as in this instance.

(4) In cases of renal calculus, the question between nephro-lithotomy and nephrectomy must depend largely upon whether the condition of the affected kidney affords a prospect of good healing and a useful kidney after nephrotomy.

I am not able to illustrate this point by the report of a completed case, since all the renal stones which I have had have been contained in extensively damaged kidneys; but I think Dr. Ogden's reports upon the following case may be of interest in this connection:

Mrs. H., seen with Dr. Round, of Norton, Mass. Patient is a stout woman in good general health, but much troubled by uncontrollable frequency of urination, especially at night.

RIGHT KIDNEY.—December 10, 1897. Color, pale, turbid. Reaction, acid. Albumin, trace. Urine slightly viscid. Sediment. Much. Considerable pus free and in clumps. Numerous small round cells and some normal and abnormal blood. Occasional medium and small caudate cell. One large clump of cells seen—round cells surrounded by small caudate cells—probably pelvic, although suggestive of new growth. Two doubtful casts seen. Urea, 1.39 per cent. Amount received, 19.5 c. c.

LEFT KIDNEY.—December 10, 1897. Color, high, turbid. Reaction, strongly acid. Albumin, trace. Sediment. Much. Considerable normal and abnormal blood. Few small caudate, medium and small round cells free and in clumps. Occasional hyaline and granular cast, rarely one with a blood and fat globule adherent. Few uric-acid crystals, apparently primary. Occasional secondary calcium oxalate crystal. Occasional leucocyte. Amorphous urates. Urea, 2.72 per cent. Amount received, 10 c. c.

The turbidity of this urine due chiefly to amorphous urates and the blood. The urine from the *right* will be another surprise, undoubtedly. Will do the sediment from the *right* for tubercle bacilli and let you hear the result to-morrow. J. B. O. [This patient also had transposed symptoms. E. R.]

RIGHT KIDNEY.—December 12, 1897. Color, high, slight bloody tint. Specific gravity, 1.023. Reaction, strongly acid. Albumin, slight trace. Sugar, absent.

Sediment. Much. Chiefly pus, free and in clumps. Many small round cells, some fatty. Few large primary crystals of uric acid. Considerable normal and abnormal blood. Occasional brown granular cast with renal cells and little blood adherent. Few squamous epithelium cells. Occasional small caudate cell. Urea, 2.72 per cent.

Thus far I have been unable to find any tubercle bacilli. Will look again to-morrow (Monday). J. B. O.

LEFT KIDNEY.—December 13, 1897. Color, high. Reaction, strongly acid. Albumin, very slight trace.

Sediment. Considerable. Numerous normal blood globules. Considerable secondary uric acid and calcium oxalate. Occasional primary crystal of calcium oxalate. Few medium and small caudate and round cells, probably from ureter. Occasional hyaline, granular and brown granular casts, rarely one with a blood and fat globule adherent. Urea, 3.92 per cent. Amount received, 9 c. c.

TWENTY-FOUR-HOUR SPECIMEN.—December 13, 1897. Color, slightly high. Specific gravity, 1.023. Reaction, strongly acid. Albumin, very slight trace.

Sediment. Much. Chiefly pus, free and in clumps. Numerous small round cells and some squamous epithelium. Some normal and abnormal blood. Occasional hyaline, granular and brown granular casts, some of large diameter, rarely one with blood and leucocytes adherent. Two very large uric-acid crystals, probably primary. Urea, 3.03 per cent.

RIGHT KIDNEY.—December 13, 1897. Color, pale, turbid. Reaction, normally acid. Albumin, slight trace. Urine, viscid.

Sediment. Much. Chiefly pus, free and in clumps, some degenerated. Numerous small round cells. Little normal and few abnormal blood globules. Occasional hyaline and granular casts, one seen with leucocytes adherent. Occasional small caudate and medium round cell (probably ureter). Occasional secondary crystal of calcium oxalate. Urea, 2.27 per cent. Amount received, 15 c. c.

The urines all look much the same as before. The uric-acid crystals look primary, yet in a urine so strongly acid it is possible that they are secondary, thus far, tubercle bacilli not found. J. B. O.

The presence of pus in the specimen from the right kidney is strongly suggestive of disease (possibly calculus); but the amount of the pus being comparatively small and the other characteristics of the specimen being substantially normal, I shall expect, if this patient proves to have a stone and comes to operation, that she will need nothing more than a nephro-lithotomy. The left kidney being in a condition of active irritation, this patient has been put upon forced diuresis, to be examined again at the end of some months, with a view of determining again the condition of each kidney. Should repeated examinations determine the constant presence of pus or other pathological elements, and her urinary frequency continue as distressing as at present, I shall expect to cut down upon her kidney.

Treatment.—The ureteral instruments are of far less value in treatment than in diagnosis; but there are two conditions in which they are of the first importance.

(1) Some of the most common symptoms of renal stone, that is, renal colic, frequency of micturition, pain on driving over rough roads and distressing vesical tenesmus—a group of symptoms certainly strongly suggestive of renal stone—may be due to stricture of the ureter, and these symptoms may be relieved by the rapid dilatation of the strictures by bougies at a single sitting, usually without ether.

CASE III. Mrs. C., seen with Dr. G. G. Sears, January 27, 1897, has been subject to occasional and slight attacks of vesical tenesmus for from five to six years. For more than two years has always been obliged to urinate from two to three times at night, and

every two or three hours during the daytime. On December 30, 1896, was attacked by dull pain in the right side, followed by sudden and extremely violent vesical tenesmus, which kept her constantly occupied in painful and ineffectual attempts at micturition for two hours, at the end of which time there was a somewhat sudden relief, coincidently with the passage of a small amount of water. In the next five or six days she had repeated similar attacks. She was then put to bed, and since then has not had any severe attack, though never wholly free from tenesmus after micturition.

After wasting some time in ineffectual attempts to relieve this patient by treatment of the bladder, the right ureter was explored with a bulbous ureteral sound. Three distinct strictures were recognized, and the right ureter was dilated by bougies, at one sitting, from No. 7 to No. 13 French. The operation was followed by considerable pain, but the tenesmus disappeared within twenty-four hours, and has not recurred. Dr. Sears informs me that the patient is now in excellent health and free from any urinary symptomatology.

I have since seen several such cases; and one recent case is the more striking in that the patient had previously been under the care of one of our most distinguished surgeons, and for many weeks under that of one of our leading gynecologists, for the relief of renal colic, without effect. This case is too recent to be quoted, but I am informed by her physician that her troubles have been so far completely relieved by a single dilatation of the ureter.

(2) The evacuation and washing out of the pus through the ureteral catheter is sometimes an expedient of considerable value as a temporary and palliative procedure.

CASE IV. Mrs. H. was seen with Dr. Tuttle, of Cambridge. Patient excessively emaciated and waxy looking. A considerable tumor was easily to be felt in the renal region on the right side. The patient was evidently too feeble to make even a rapid incision into the pus sac safe. A renal catheter was passed into the right ureter, and a large quantity of foul pus sucked out with an ordinary aspirator. The kidney was then washed out with salt solution until this came away clear. The renal catheter was left in the ureter, and the washings repeated daily for sixteen days. Under this treatment the amount of pus decreased greatly. The temperature subsided, the patient's appetite returned, and she gained flesh and condition with great rapidity. At the end of the sixteen days the catheter was removed, and it proving difficult to reintroduce it, Dr. Tuttle let the patient go several days without it; but as she immediately fell off in condition, he cut down upon the abscess and introduced a tube. Ten months later, as pus was still issuing from the tube, and as the patient was now in thoroughly good condition, he did a nephrectomy, and informs me that the patient is now well. In my judgment an operative procedure would have been necessarily fatal on the day when I first saw the patient, and the safety of the nephrectomy three weeks later was, in my belief, undoubtedly due to the improvement which was permitted by the daily flushings of the kidney.

TYPHOID FEVER is epidemic at Buda-Pest, in consequence, it is generally supposed, of impure water. Dr. Frank has been appointed to make an investigation.

A REVIEW OF THREE YEARS' WORK AS A BOARD-OF-HEALTH PHYSICIAN.

BY ALLEN GREENWOOD, M.D., WALTHAM, MASS.

HAVING on the 1st of January, 1898, resigned my position as physician to the Waltham Board of Health in order to devote more time to my ophthalmological work, I thought that I could in no better way bring to a close my health work than by giving this brief review, hoping that some points might be brought forward helpful to others in their efforts to control contagious diseases.

For some time prior to the beginning of the year 1895, it had been apparent to the local board of health that the quarantining and questions of recovery of cases of contagious diseases, being left to a non-medical agent and the family physician in charge, were not productive of the best results in preventing the spread of these diseases. At one time it was customary for physicians to send in a card notifying the board where cases of scarlet fever had recovered and were in no need of further isolation.

This card was often sent in on the strength of the parents' statements that the patient had ceased desquamating, the physician not taking the trouble to ascertain the true state of affairs, which were not usually in accordance with the statements of householders anxious to have a red card removed. To obviate this a limit of six weeks was at one time established for scarlet fever cases; but this was unjust to some and not time enough for others.

Owing to these obvious defects in the methods of the board and the board's desire to bring to the aid of physicians the newly perfected bacteriological test in the diagnosis of diphtheria, it was decided to employ a physician to have entire charge of the contagious-disease department with one of his principal duties to consist in the taking and examining of cultures for the physicians of the city. I was appointed to fill this position in January, 1895; and in writing this review I shall attempt to indicate what are the duties devolving upon the incumbent of such a position in a small city, say 15,000 to 30,000 inhabitants, also what may be accomplished in the way of lessening the spread of contagious diseases.

First, I will give in full a regulation which the board of health has adopted at my suggestion:

REGULATION (10).

No parent, guardian, or other person having the custody of any child, shall permit such child to attend any school in this city so long as any member of the family with which such child may be living is sick with small-pox, diphtheria, scarlet fever or measles; nor until two negative bacteriological results have been obtained three days apart in all cases of diphtheria occurring in such family; nor until complete recovery shall have been determined by the Physician of the Board of Health in the last case of scarlet fever, measles or small-pox.

This regulation, of course, applies particularly to school-children, but health-officers can have given them by boards of health authority sufficient to insist on the proper quarantine for any case, and they should make every effort to this end.

The stringency of this regulation has, of course, added to it the provision of the State statutes, which require that no child shall be allowed to return to school until two weeks have elapsed after the dismissal from quarantine by the board of health.

Whenever a case was reported at the office of the board I was immediately notified, and as soon as pos-

sible made a visit to the house. In cases where I felt that a proper isolation could not be maintained at the time, the patient was removed to the contagious ward of the Waltham Hospital. Boards of health have the power through the courts to remove any case from home to a place of isolation. During the three years I was never obliged to resort to this measure, though I have often had to spend a great deal of time in patiently explaining to parents the necessity for the removal of their child, often coupling the explanation with the statement that no member of the family could go to work in factory, shop or store as long as the house was under quarantine. This statement I always found of great help in overcoming opposition.

Out of the 295 cases of diphtheria occurring during the last three years, 99 were sent to the hospital, and 43 out of the 95 cases of scarlet fever.

When the case was to be kept at home, careful instructions were given to the one to be in charge, usually the mother, in regard to the disinfection of everything, such as dishes, bedding, etc., before sending from the room. The attendant was also expected to be gowned from head to foot, and only allowed to leave the room after removal of the cap and gown and bathing the hands in an antiseptic solution (usually corrosive 1-3,000). In poor families the board often furnished corrosive tablets. Occasional visits have to be made to see that these instructions are properly carried out, and no case allowed to be dismissed from this careful quarantine until the physician of the board is satisfied as to the completeness of the recovery.

I have often had cards sent in by physicians announcing the recovery of cases of scarlet fever, and have gone to inspect the case only to find extensive desquamation which often persisted for several weeks after. When a case has fully recovered the health physician should see that the premises are properly disinfected.

During the greater part of the three years the Waltham Board made use of a modification of the German method introduced by Dr. Alfred Worcester, then chairman of the board. This consisted in wiping wall-paper with bread and thoroughly washing all wood-work, floors and furniture with strong soap and water, even cleaning out the cracks with specially shaped knives, followed by a thorough washing with carbolic acid (three or five per cent. solution). All bedding and clothing that could be was boiled, and that which could not be was sponged carefully over with the carbolic solution. Valueless material was, of course, destroyed by fire. Before leaving the sick room the patient and attendant had to take a corrosive bath, leaving their infected clothing in the room and putting on clean clothing in another room. The board has long felt the need of a steam disinfecting-plant for clothing and bedding, and one will probably be provided by the Waltham Hospital before another year. During the past few months the board has been using the method of disinfecting by freeing formaldehyde gas in the room.

That part of the work of the physician which requires the most time and care is with bacteriological investigation. Cultures are taken at any time of the day or evening at the request of any physician, and the result of the microscopical examination communicated by telephone as early the next morning as possible. The laboratory is provided for the board of health by the Waltham Hospital; and I owe a debt of gratitude to the nurses of that institution for their

painstaking care of the tubes, incubators and laboratory in general.

Early in my first year the physicians of the city were notified that the physician of the board would also make free examinations of sputum for tubercle bacilli.

During the three years there were taken and examined 1,888 cultures, with 767 showing the presence of the Klebs-Löffler bacillus. There were also examined 722 specimens of sputum, with 552 showing the presence of the tubercle bacillus. The large number of sputum examinations is accounted for by the fact that during the first two years a phthisis ward was maintained at the Waltham Hospital, and a specimen was examined from each patient every week.

Another important duty consists in some supervision of schools and school-children. Dr. Durgin, of the Boston Board of Health, has shown in a practical way the great necessity and advantage of a careful system of school inspection for Boston. In small cities like Waltham with somewhat scattered schools and a small appropriation for health work such a system as Dr. Durgin's is too expensive. Here in Waltham, therefore, I have adopted the following expedient: By the co-operation of the School Committee teachers are instructed not to allow any child suffering with throat trouble to remain in school. The child must be sent home with a note to the parents to the effect that the child cannot return until seen by a physician and given a proper certificate. The parents are informed at the same time that a free examination of the child's throat will be made by the board of health physician. In this way I have been able to detect and isolate a number of cases of diphtheria. When a child returns to school after an absence and tells the teacher that sore throat was the cause, the child should also be sent home for a certificate. If several cases of diphtheria are reported at about the same time and all in children attending school in the same room, that room should be disinfected, and the remaining children examined and carefully watched.

During the three years it was necessary only once to close a school on account of an epidemic among the attending scholars. In this case an outlying "district" school was closed for a month and thoroughly disinfected. Thirteen cases came from this school, starting from a child with "sore throat" who was visiting a family having children attending at the school. The child returned to its home in Boston before I saw it, and eventually went into the City Hospital, South Department.

By thus carefully watching school-children, taking cultures from all suspicious throats, carefully quarantining suitable cases, and removing others to a hospital until *entirely recovered*, health officers may naturally hope to materially lessen the spread and mortality of the contagious diseases. That this has been accomplished to some extent in Waltham I think the following will show.

The population of Waltham is about 21,500. In 1894 there were 110 cases of diphtheria, with 20 deaths; in 1895, 171 cases with 2 deaths; in 1896, 74 cases with 5 deaths; and in 1897, 54 cases with 2 deaths. The lessened mortality, of course, is largely due to the introduction of antitoxin, which fact is well shown by the occurrence of nine consecutive cases of intubation at the Waltham Hospital without a death. In considering the number of cases during the past

three years, it must be remembered that many of the cases found to be diphtheria would be called tonsillitis in the anti-culture days. In 1894 there were 93 cases of scarlet fever with 1 death; in 1895, 27 cases with 2 deaths; in 1896, 30 cases with 4 deaths; and in 1897, 38 cases with 2 deaths.

To show more fully the advantages of a careful isolation at the home, or removal to a hospital, I have prepared the following tables to cover the cases of diphtheria and scarlet fever in 1897:

DIPHTHERIA CASES.

Isolated at home.

In families with 3 or more other children, 8 primary cases with infection of 2 others.

In families with 1 or 2 other children, 12 primary cases with infection of 2 others.

In families with no other children, 8 primary cases with no other infections.

Sent to the hospital.

From families with 3 or more other children, 15 primary cases with infection of 8 others.¹

From families with 1 or 2 other children, 5 primary cases with no others infected.

¹ In 6 of these 8 cases, 3 in each of 2 families, the infection had shown itself before the primary case was removed.

SCARLET FEVER CASES.

Isolated at home.

In families with 3 or more other children, 2 primary cases with infection of 1 other.

In families with 1 or 2 other children, 14 primary cases with infection of 2 others.

In families with no other children, 3 primary cases with no other infections.

Sent to the hospital.

From families with 3 or more other children, 5 primary cases with infection of 3 others.

From families with 1 or 2 other children, 8 primary cases with infection of 1 other.

It will be noticed that there were no cases sent to the hospital from families where there were no other children.

In looking over the tables it should be remembered that cases sent to the hospital are usually from poor families where a doctor is often called in late and the conditions present are most favorable for an early spread of the infection.

In all there were 42 families having a case of diphtheria, and with a total of 102 other children of which only 12 became infected; and there were 32 families having a case of scarlet fever, and with a total of 60 other children of which only 7 became infected.

With the cases enumerated above I have not included those occurring at the Massachusetts School for Feeble-minded, which institution is situated on the outskirts of the city. That the slight epidemics there have not reached greater proportions, when one considers the nature of the inmates, is undoubtedly due to the intelligent zeal and watchfulness of Dr. W. E. Fernald, the superintendent, and Dr. E. R. Cutler, the visiting physician. The disinfecting plant and isolation wards at this institution are well worth a visit from any one interested in health matters.

In cases of typhoid fever, besides endeavoring to trace their cause, the health-officer should make every effort to prevent the cases under observation from becoming sources of infection of milk or water supplies.

I have in this review indicated along what lines work may be best conducted, and have not gone very deeply into the finer details, which will readily suggest themselves to any one. The work here in Waltham which I have begun will be most carefully and skilfully elaborated by my successor, Dr. H. D. Chadwick.

Clinical Department.

A UNIQUE CASE OF EDEMA OF THE SUPERIOR SURFACE OF THE SOFT PALATE.

BY TIMOTHY J. REARDON, M.D., BOSTON.

THIS case, presenting, as it does, many interesting features, induced me to study the literature pertaining to it. I was unsuccessful, however, in finding its analogue.

Dr. A., age twenty-eight, has had for the past two years considerable pharyngeal catarrh; he complains especially of dropping in his throat, and of occasional efforts at hawking with expectoration of muco-purulent crusts.

June 20, 1897, just before retiring for the night, he tasted a sample milk powder; this caused but little discomfort. About 2 o'clock A. M. he was awakened by the sensation of a foreign body in his throat; his throat had a parched feeling also. He went to the mirror, and was surprised at seeing a white tumor dependent from his soft palate, and almost completely filling the isthmus faucium.

He consulted me at my office about 9 A. M., and an examination of the fauces showed a mass the size of a pigeon's egg dependent from the soft palate; its longest diameter, which was the horizontal, measured one inch; its vertical diameter, three quarters of an inch; and it measured the same antero-posteriorly. It was pale, glistening and inseparable from the soft palate. Crepitus was absent. The uvula was edematous and the inferior surface of the soft palate was pale. The junction of this surface with the mass was sharply defined and was horizontal instead of convex. No evidence of inflammation was present. Posterior rhinoscopy was rendered impossible by the mass. The patient complained of almost constant deglutatory efforts.

I advised incision of the presenting surface; this was done. A clear serum oozed forth and the mass rapidly diminished in size. Examination of nose and larynx was negative. Urinary analysis was also negative.

At 2 P. M. of the same day the patient returned to my office; the edematous mass had disappeared and it was then possible to explore the vault and posterior nares. The vault was covered with a muco-purulent secretion. On removing this, the recessus medius was seen to be the discharging point and this was treated with a ten-per-cent solution of argentic nitrate; rapid improvement followed.

Etiology.—The presence of suppuration in the recessus medius suggests the possibility of a crust becoming adherent to the superior surface of the soft palate, and of the edema having been caused by attempts to dislodge the crust. The milk-powder episode I regard as a coincidence.

Differential Diagnosis.—The case is interesting, especially in regard to the possibility of the mass having been due to nasal polypi, which sometimes protrude into the naso-pharynx, but are rarely visible much below the arch of palate. They are also more rounded. Edema of other parts of the palate is, as a rule, inflammatory in origin. A notable exception is the angio-neurotic form, which may appear at any point in the body. Cuntz states that in reference to the palate, it is more frequent at the junction of the hard and soft palate. Polypi dependent from the soft palate

are rare, and most frequently have their origin at the junction of the soft palate and uvula. A similar condition in appearance might be induced by an emphysema; such, for example, as follows catheterization of the Eustachian tube. A case is reported by Sidlo which was apparently spontaneous in origin, no cause being ascribed; it occupied one-half the palate, and upon being ruptured by the patient immediately re-filled with air.

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Medical Progress.

REPORT ON DERMATOLOGY.

BY JOHN T. BOWEN, M.D., BOSTON.

SARCOMATOSIS CUTIS.

TANDLER¹ describes in detail an interesting case of multiple pigmented sarcoma of the skin that was shown by Pick at the meeting of the Association of German Physicians in Prague in March, 1897. The subject was a girl of twelve who entered the clinic in October, 1896, on account of an affection of the fingers that had begun about a year previously. There appeared on the dorsal surfaces of both hands small white, exceedingly pruritic wheals, which disappeared after a day or two leaving brown spots, which were in their turn intensely pruritic, and which gradually increased in size and became confluent. Six months later these brown spots became infiltrated, until their site was occupied by nodules of the present size. Some of these nodules disappeared from time to time. Nodules also appeared on the elbows. When examined most of the fingers were found to be greatly thickened, especially about the joints, and this thickening to be due to the presence of numerous deep-seated nodules, partly discrete, partly confluent, so as to form large masses of infiltration. Several nodules were present on the elbows, one of which was ulcerated, and the knees also were somewhat affected. There was no enlargement of the lymph glands, and examination of the blood revealed no important changes. There was a diminution in the sense of touch on some of the tumors of the fingers, which was regarded, however, as probably due to the tension of the skin. Nodules excised from the left elbow for histological examination showed the picture of a connective-tissue tumor very rich in cells, with spindle cells predominating—in other words, a spindle-celled sarcoma, of constant structure in all the sections examined, with no degenerative changes in the centre nor pigment formation, as was to be expected from the macroscopic appearances of the tumor. In nodules excised from the right elbow, which were in a state of superficial ulceration, the same appearances were found as in those from the left elbow, with the exception that numerous vessels with proliferating intima were found in the centre, about which there was a profuse collection of cells. There was a very great profusion of *mastzellen* not only in the connective

tive tissue about the tumor but in the tumor itself. A tumor excised from the finger of the right hand revealed in the sections the presence of two nodules situated close to one another, lying in the reticulated portion of the corium extending downward to the subcutaneous connective tissue, but not reaching so far upward as the papillary layer. This tumor varied from those taken from the elbows in that it was divided into several small portions by connective-tissue bands, poor in cells, with remains of elastic fibres and an occasional blood-vessel. The spaces between these partitions were filled with closely aggregated spindle cells, together with some round cells.

The result of the histological examination proved that the tumors belonged to the sarcomata. With regard to the division of the sarcomata in which this case is to be placed, Tandler points out that it differs in some important respects from the multiple idiopathic pigmented sarcoma of Kaposi. In this case the nodules were not colored, were not painful on pressure, and on their disappearance left no pigmentation or scarring. It was like the multiple pigmented sarcoma, however, in the appearance of the tumors first on the hands, in their progression over the forearms, forming larger infiltrations, and in the absence of glandular enlargements.

Under intramuscular injections of Fowler's solution, one part to three of water, which were given every second or third day in gradually increasing doses, the tumors grew perceptibly smaller in the course of two and a half months. The injections were then omitted and Fowler's solution given internally. When the patient left the hospital the tumors on the fingers had almost entirely disappeared, leaving only a reddish-blue color of the skin over their sites and some looseness of the integument. The tumors on the forearms and elbows had disappeared entirely. The patient's general condition was good.

ALEPPO BOIL.

Nicolle and Noury-Bey² of Constantinople have studied nine cases of this peculiar affection. The disease is of great frequency and the statement has been made that none of the natives escape it, while Europeans are less often affected. It is communicable from man to man, and natives of Aleppo have often carried the disease into parts of Asia Minor where it was previously unknown. It occurs at all seasons of the year and does not affect animals. Its ordinary seat is the face and the uncovered parts of the body. It has an incubation, when inoculated, of from one week to two months, and begins in the form of a papule of the size of a large acne nodule which gradually increases up to that of a twenty-centime piece. It is not reddened nor painful, and becomes covered with a crust, beneath which is an ulcerated surface, at about the third or fifth month. It begins to cicatrize at the end of three or four months, leaving a permanent, depressed, characteristic scar. There are never any complications, but it is annoying from its long duration and disfiguring scars. It is generally single, although sometimes there are from ten to twelve. Treatment has proved of no avail, except that of respecting the crusts and making soothing applications.

All the writers who have studied this affection have constantly found micrococci in the lesions, in some cases staphylococci, in others streptococci. Nicolle

¹ Archiv. f. Derm. u. Syph., Bd. xli, Heft ii.

² Annales de l'Institut Pasteur, October, 1897.

and Noury-Bey have found a streptococcus in two cases observed at Constantinople and afterward in seven cases studied in Aleppo. Of these nine cases seven had reached the suppurating stage, two had not progressed so far. In the fluid (pus or blood) the microscope always revealed the presence of streptococci, sometimes in chains, sometimes as diplococci, often in both of these forms. Sometimes other micrococci and bacilli were also present. In these cases the cultures made from the pus or blood contained the streptococcus in pure culture. This streptococcus presents nothing singular in its morphological character. When inoculated on animals it shows little virulence. Monkeys of different kinds were inoculated with the pus and blood and with the cultures, but without any result. Veillon not long since described a streptococcus which he had isolated in a case of Aleppo boil, and which he was inclined to regard as the pathogenic agent of the affection. Nicolle and Noury-Bey consider that their streptococcus is quite different from that described by Veillon. Their streptococcus gives a yellow color to the cultures, and is without virulence for animals, including monkeys. It is developed in less than twenty-four hours upon different media, of whatever kind, and was present in all the cases examined. Experiments made upon animals with a view to rendering them immune by means of Marmorek's serum proved negative.

A CASE OF DEATH FROM HERPES ZOSTER.³

A child of four was brought into the Liverpool Stanley Hospital, who was suffering from a well-marked case of herpes zoster limited to the skin supplied by the twelfth dorsal nerve on the left side. The eruption had been out for about a week and had begun near the middle of the back and gradually spread around to the front. The three stages of papules, vesicles and pustules, could all be well seen, and there was a considerable inflammation at the base of the lesions, spreading somewhat into the neighboring areas. There was complaint of pain at the site of the lesions, which had antedated the eruption. A week later the herpetic appearances had entirely disappeared, whereas their site was occupied by larger and smaller patches of gangrene, the skin between the patches being in a high state of inflammation. The odor was very foul. When next seen two days later, the gangrenous patches had almost all coalesced, and the child was in a desperate condition, evidently due to septic absorption. Four days later, death occurred, the temperature having varied between 99° and 101°, diarrhea also making its appearance. Every attempt was made to remove the sloughs mechanically and by hot boracic-acid applications. It was regarded as probable that a fatal termination would not have occurred had the child been left in the hospital. Death is very rare in herpes zoster, although sloughing, more or less extensive, is not uncommon.

EDEMA IN INFANCY AND CHILDHOOD.⁴

After enumerating the various infectious diseases, as scarlatina, measles, erysipelas, diphtheria, etc., that may be accountable for the renal irritation that produces edema in infants and young children, as well as touching upon the fact that eczema and other cutaneous diseases are often the cause, Griffith and New-

comet, assert that it is not yet definitely conceded that congenital syphilis may produce nephritis and a consequent edema. It seems, however, that this must occur in rare instances. The writers then enumerate two cases that they have observed personally. In the first case, that of an infant of two months, it was not possible to decide whether the nephritis and the edema that succeeded it were due to syphilis or to scarlatina. In the second case there was greater probability that the nephritis was caused by the syphilitic poison. There may often be edema in children, of a more or less general character where there is no distinct evidence of nephritis as after erysipelas and scarlet fever. As other causes of edema may be mentioned pressure upon venous trunks by enlarged bronchial glands, and any state of extreme exhaustion, debility and anemia.

Edema neonatorum is regarded rather as a symptom of several conditions than a pathological entity, and it is a disputed question whether or not it is identical with sclerema neonatorum. It begins usually before the third day of life in weak or premature infants, and is characterized by low temperature, coldness of the surface, and an extensive edema that pits with difficulty on pressure. Pulse and respiration are weak and slow, and the affection usually ends in death. In sclerema neonatorum the skin is hard and will not pit, is often discolored, and when cut into does not exude serum. After relating a case of edema neonatorum that had come under their own observation, the writers state that they have been able to find but five well-authenticated cases of the disease in America, of which they give abstracts.

With regard to so-called angioneurotic edema, its occurrence in early life is rare. The writers regard it as closely allied to urticaria, and identical with giant urticaria. They also rightly consider that it is related to some of the forms of peliosis rheumatica and to Hensch's purpura. It is, as is well known, often accompanied by gastro-intestinal disturbances, by urticaria and purpura.

Finally, there are cases of edema in infancy of entirely obscure origin. In this class is to be placed the remarkable instance reported by Milroy where out of 97 individuals in six generations, 22 had been affected with a permanent edema involving one or both legs. It was congenital in all but one case. The writers relate the case of a boy of four years, whose left leg and face began to swell at the age of three months, and this condition had continued since with some variations in degree. The intelligence was normal and the child well developed. The edema of the leg did not pit on pressure, but was very firm. Compression of the leg by means of medicated plasters caused a considerable diminution in the edema.

INTERNATIONAL LEPROSY CONGRESS.

At the first meeting of this congress, held in Berlin in October, 1897, Neisser, while admitting that absolute proof that the leprosy bacillus is the cause of the disease, has not yet been attained — since all attempts at obtaining pure cultures of these bacilli, and producing the disease in animals by inoculation of these cultures, have failed — considers that the following facts justify us in assuming a causal relationship, with great certainty.

(1) The absolute constancy of the presence of the bacillus in all cases of leprosy that are clinically indis-

³ *Lancet*, October 30, 1897.

⁴ Griffith and Newcomet, *Medical News*, October, 1897.

putable. This is independent of the manner of living, nourishment, climate, race, age or sex of the individual, or of the form of disease in the special case.

(2) Every clinical symptom of the disease is to be explained by the assumption of a bacterial pathological anatomical process.

(3) The minute histological appearances in the cells are dependent on the presence and peculiarities of the bacilli.

(4) The bacilli differ from all other bacilli found in all other diseases, not only in their reaction to staining agents, but also in their failure to grow on artificial culture media, and in the innocuousness for animals.

(6) These constant and characteristic bacilli are present in a disease which can only be explained on the supposition of an infectious material existing in lepers. The contagiousness, which is now fully proved, finds a further support in the numbers of bacilli which leave the body and afford opportunity for spreading the disease to other persons.

Neisser believes that the difference between the two clinical types, tubercular and anæsthetic leprosy, is best explained by the quantitative difference in the bacilli. There is no proof of a varying virulence in the bacilli nor of a varying degree of immunity or predisposition in the individual. It is conceivable, however, that external and chance conditions may effect the capacity of the bacilli for multiplying after their entrance into the individual and also may influence the localization. The difference in quantity of the bacilli in the different cutaneous forms of the disease is remarkable, and it is possible that the different situations of the bacilli may be a factor. In the macular forms, which mostly arise from erythematous eruptions, we have to do with bacilli that lie within the capillaries, which appear to be short lived, but capable of exercising an energetic chemotactic action by virtue of their toxins causing hyperemia and perivascular infiltrations, the cells of which do not undergo a typical leprosy degeneration, but exhibit a tendency to the new formation of tissue. The tubercular forms, on the other hand, are caused by the bacilli situated and multiplying in the lymph channels in the first instance. Very soon, however, they are found in greatest numbers in the infiltration cells. Here are found the typical "leprazellen" with vacuoles and fatty degeneration, and the so-called "globi." The macular forms were regarded as tropho-vasomotor disturbances until the presence of bacilli, in very small numbers, was detected in the infiltrations. Neisser considers Gram's method with a counter-stain of saffranin or Bismarck brown the best for detecting these sparse bacilli. Further it has been shown that anæsthetic but otherwise apparently sound skin may contain bacilli. Examination of a bit of excised skin may therefore establish the diagnosis, or it may be necessary to examine a bit of the nerve, in case of a negative result. The bacilli may often be found in tubercular cases in the fluid from artificial suppuration and vesiculation, but in the anæsthetic forms the number of bacilli appears to be too small to render this test of much value.

It has also been shown latterly that completely normal-looking skin with no anæsthesia may contain bacilli. Neisser's observations were made chiefly in tubercular leprosy. The same is true of the nerves, as bacilli in considerable numbers have been found in the nerves with pronounced changes in cases where there

were no external appearances, and comparatively trivial clinical symptoms. It is regarded as probable that the symptoms in anæsthetic leprosy are determined by the local degeneration of the nerves of the affected part, and that the possibility that there is in many cases a descending degeneration cannot be excluded. The mutilations he regards as most probably due to traumatic causes acting on the anæsthetic extremities, and not to trophic disturbances, although the latter cannot be excluded. Despite the discovery of bacilli in the blood, Neisser does not believe that they usually circulate there, but that the lymphatic system is their usual locality and place of multiplication.

Glück, in an essay on leprosy of the upper respiratory and digestive organs, states that the work of previous writers, as well as his own, has shown that it is an error to assume that the mucous membranes of the upper respiratory and digestive tracts are not affected in anæsthetic as well as in tubercular leprosy. He has tabulated together his own cases and those of three other careful observers, Eichmüller, Leloir and Paulson, with a total of 264 belonging to the tubercular, anæsthetic and mixed varieties. It was found that the nose was most frequently affected (in 68 per cent. of the cases of tubercular leprosy, 44 per cent. of mixed leprosy, and 18 per cent. of anæsthetic leprosy), next in order the larynx, palate and pharynx, lips and tongue. It has become an interesting question at what period of the disease the mucous membranes of these regions become affected. Many writers, including Kaposi and Impey, consider that they are not invaded until after an average duration of the affection of several years on the cutaneous surface. Neisser believes that cutaneous and mucous membrane lesions appear at about the same time. Leloir, on the other hand, places the dryness and bleeding of the nose among the prodromal manifestations, and says that the mucous membranes in question may be invaded at the beginning of the tubercular outbreak; and in any case, when the tubercular eruption of the skin has lasted some time they end by being affected. Glück is of the opinion, that the time of appearance of the mucous membrane changes is very variable, sometimes appearing simultaneously with the cutaneous lesions, and sometimes not until later. He regards it as certain that these mucous membranes are not, as a rule, affected before the appearance of characteristic symptoms on the skin, but that one or another part of them is usually affected at the same time as the outbreak of the first permanent changes of the skin, a period that is attended by more or less marked febrile signs.

The 83 cases that were carefully analyzed by Glück showed that the nose was affected in 89 per cent., and proved that it was affected not only in tubercular but in anæsthetic leprosy, contrary to some previous views. It was also found that the changes were so far advanced in the first years of the disease, that it must be regarded as certain that they appeared at the beginning of the disease. His investigations further showed that all the bones of the nose may be affected. He found that in his cases of tubercular and mixed leprosy the mouth and pharynx were affected in 73 per cent. In eight cases of pure anæsthetic type no changes were recorded. It appears that the mouth, especially the lips, is usually affected very early in the disease, as he found the lips thickened, with nodules, erosions and scars on their mucous membrane in very recent cases. The gums were, on the whole, seldom affected, and

then usually at a later stage, when they appeared reddened, swollen and covered with erosions. The mucous membrane of the cheeks was still less often affected. Most commonly affected were the hard and soft palate and the uvula. In the later stages of the disease here the appearances resemble very closely those of syphilis.

The most common and characteristic feature of leprosy of the tongue is the appearance of nodules, isolated or in groups, situated usually in the centre of the upper surface. They show little tendency to ulceration and remain for years unchanged. Twenty-one out of twenty-two cases that were examined with the laryngoscope showed changes in the epiglottis, which was usually thickened, stiff and immovable. On the vocal chords at the beginning of the process, a slight roughness is noticed which is followed by swelling and thickening, and later by ulceration. There is a great tendency to cicatrization so that the true and false vocal cords are often entirely destroyed.

Sticker examined 400 cases of leprosy in India and in Egypt, and has come to the conclusion that the primary lesion is on the mucous membrane of the nose, usually in the form of an ulcer on the cartilaginous portion of the septum. This is present in the latent period of the disease, often for years before the appearances on the skin or in the nervous system. In 153 cases the secretion from the nose was found to contain bacilli 128 times. The primary lesion of leprosy lasts during the entire course of the disease, and it is from this source that the bacilli are regularly and in large quantities given off. The other secretions, with the exception of purulent sputum, do not contain nearly so many bacilli. The writer believes that leprosy is carried from the sick to the well by the direct transference of the poison from nose to nose, less often indirectly by means of handkerchiefs, soiled hands, etc., and that the disease is transmitted to the system generally from the primary lesion by means of the lymphatics, in some instances by the blood-vessels, after the manner of miliary tuberculosis.

Hansen, the discoverer of the bacillus of leprosy, discussing the question of the transmission of the disease from person to person, refers to the repeated attempts made by Danielssen to inoculate himself. At various times, the blood and pleural exudation, as well as bits of tissues from nodules of tubercular leprosy, were inoculated upon himself and several other persons, but always with a negative result. As these inoculations were performed before the days of antiseptics it is rather remarkable that no severe septic symptoms followed. It is possible that the leprosy bacilli proved hostile to the other micro-organisms introduced, or that the supuration was sufficient to kill the leprosy bacilli. It is also possible that in some instances the inoculations were not carried beneath the epidermis, in which tissue the bacilli do not thrive. Hansen himself had attempted to produce the tubercular form in two cases of anæsthetic leprosy by inoculating nodules from the former upon the skin of the arm, and upon the conjunctiva, but with a negative result. These experiments having failed, it is necessary to seek for other arguments in favor of the infectiousness of the disease; and in Norway the mode of life of the people affords a favorable opportunity for contagion, it being the custom quite universally for two people to share the same bed, and for workmen to live together in close contact. Hansen is strongly inclined to the belief that direct inocula-

tion is the usual mode of transmission. The bacillus is so slow in reproducing itself at the outset, that the site of invasion has never been detected with certainty as yet. He relates the case of a man, the servant of a leper, who, while wearing a pair of trousers given him by his master, received a cut in the thigh. He developed symptoms of leprosy a year later, but it was impossible to detect any peculiarities about the wound. Hansen regards the indirect mode of transmission by soiled clothing and other articles as also operative.

Reports of Societies.

SURGICAL SECTION OF THE SUFFOLK DISTRICT MEDICAL SOCIETY.

PAUL THORNDIKE, M.D., SECRETARY.

REGULAR Meeting, Wednesday, December 1, 1897, DR. H. L. BURRELL in the chair.

UTERINE CUTTING FORCEPS.¹

DR. BURRELL: I have here a uterine cutting forceps, made for me by Codman & Shurtleff that is designed to remove pedunculated fibroids situated at the fundus and, in the morcellation of fibroids, to smooth off the rough surface left behind. You have all doubtless had the same experience in using the vulcella that the teeth tear through very often leaving pieces of tissue behind. There seems to be a place for some instrument that would seize hold of the tissue and bite it off. This cutting forceps will cut pretty well most any sort of tissue. It goes through fibroid tissue very readily and it will even cut tissue as hard as bone. It has a cutting surface at the end of half an inch. The blades are quite strong, some ten inches long, and there is a French lock two inches from the end. The blades are protected so as not to catch the guiding finger, because this work has to be done largely by touch. With the vulcella there is some danger, as you know, of tearing the finger. The forceps is intended for cutting off tissues at the fundus which cannot be reached very well by scissors and by the ordinary forceps. I have found it to work very well and it has considerable power.

FLUID FROM AN ABDOMINAL TUMOR.

DR. M. H. RICHARDSON: This fluid, which should be milky white, but is slightly tinged with blood, was taken from an abdominal tumor in a woman of forty-five, who had had this tumor four years. No loss in weight. No symptoms except a feeling of distress across the epigastrium and a feeling like that of a bone impacted in the rectum. This case was seen by Dr. Homans some years ago; she was admitted to the hospital, and Dr. Homans advised against operation. My diagnosis was multiple fibroid. It was a patient of Dr. Odlin, of Melrose, who operated day before yesterday. I was present in consultation and assisted at the operation. It is one of a very considerable series of cases in which I have made a wrong diagnosis. The last fibroid before that I operated on was an extra-uterine pregnancy. That was a cyst of the mesentery containing chyle and in something like 1,000 abdominal sections it is the first case of the kind I have seen. The operation was the day before yesterday,

¹ See page 207, No. 9, of the Journal.

and the patient is in good condition to-day. The emergency, if it may be called an emergency, had never arisen before. What to do we did not know, but we chose the resource that we have in all doubtful cases, of draining with a gauze strand and leaving the patient to recover with a sinus. The reason we did not close immediately was that being chyle, as microscopical examination shows, it would seem that if we should close the abdomen there would be a constant secretion of chyle in the small intestinal coil in which this cyst was situated; therefore it did not seem wise to close the abdomen although this fluid was sterile. A small drain was put into the mesentery and the rest of the incision closed. The patient to-day has a normal temperature, the abdomen is soft and she is in very good condition.

DR. M. H. RICHARDSON read a paper entitled

THE INDICATIONS FOR NEPHRECTOMY.

DR. SCUDDER: I have had a little experience with nephrectomy. I have done three nephrectomies. The first two were for tuberculosis; one in the case of a woman who was very much emaciated and evidently suffering from some constitutional disturbance with a very high temperature. A nephrectomy immediately reduced her temperature to normal and she made a good recovery. During the few months following the operation she increased in weight and improved in general health. She has returned to the hospital within the last two months with a sinus in the loin which has been explored and curetted.

The other tubercular case was that of a man who had an extensive disease of the deep abdominal wall secondary to the tuberculosis of the kidney and in that case two-thirds of the kidney was removed. He improved after the operation. The third case was a cystic adenoma of the kidney which was interesting because of its anatomical position. The tumor was situated at the lower end of the kidney and its position suggested a procedure which perhaps Dr. Richardson has mentioned in his paper, but did not speak of in what he read, namely, the removal of the tumor from the kidney instead of complete nephrectomy. In this case excision would have been possible had it been known that the tumor was not very malignant and did not involve the whole kidney. The case was that of a woman, about twenty-five years old, who was pregnant three months, and the tumor was growing rapidly. The woman recovered from the nephrectomy and was delivered at term normally and has since had a second child with no difficulty. This latter case is reported in full in the *American Journal of the Medical Sciences*, December, 1895. It is detrimental to the patient I believe if any part of a tubercular kidney is left, — all should be removed. Removal of kidney tumors without removal of the whole kidney is possibly good surgery in selected cases.

DR. OGDEN: Dr. Richardson's results are especially interesting in connection with the cases which developed an acute glomerulo-nephritis. It is a very common occurrence to find more or less renal disturbance on the well side in these cases, the urine having the characteristics of what we ordinarily term an active hyperemia, which may be either mild or severe. It is probable that the renal disturbance seen in this class of cases is the result of the elimination of the toxic material which has been absorbed from the diseased kidney, and that the irritant affects chiefly the glom-

erulus; but, from the urine alone we are, as yet, unable to determine the presence of a disease of the glomerulus.

I should not be in favor of operating on a diseased kidney if the other one was severely irritated, unless the operation was necessary because of the patient's condition, but should advise waiting a reasonable length of time for the irritation to subside. I have seen instances in which the irritation did not subside and the operation was performed without untoward effects.

DR. E. W. CUSHING: I have had a few cases of nephrectomy which perhaps illustrate a little the different class of cases which arise in different services, namely, that cases often occur where cysts of the kidney become so large that they are supposed to be ovarian tumors, until a more accurate diagnosis is made. I have had seven cases of removal of the kidney. Of those two were tubercular, the kidney being in one case as large as the two fists and in the other nearly twice as large, filled with a cheesy, gummy mass. One of those women died, and the lungs were found to be riddled with very small tubercular abscesses. The other recovered and did very well. A very large congenital cyst of the kidney I showed in this Society some time ago, where the woman died about a fortnight afterwards with urinary symptoms, the second kidney being cystic. The others recovered. There were cysts varying from the size of an infant's head, in a young woman in New Hampshire, where the ureter had apparently become obliterated about three or four inches from the kidney. In the others it was not so easy to say before operation what they were. They were cysts as large as nine inches in diameter, where it was difficult to say in the beginning from where the tumor arose. They were apparently not malignant. There was no especial difficulty in operation. They recovered. I am a good deal enlightened by the paper which we have heard, in regard to the question of the necessity of removal of the entire kidney for stone. I had supposed that where the diagnosis of stone could be made and the kidney be opened from the loin or flank and the stone extracted, that it was considered preferable to do so. I think myself I should much prefer to remove the kidney through the abdomen than to do an operation that is described as comparatively easy — the removal through the loin. I should like to ask Dr. Richardson to explain more fully how he would proceed in case of stone in the kidney.

DR. BURRELL: I am very glad to find that I am entirely in accord with Dr. Richardson in the view which he has taken in these cases, and I have arrived at these views from a comparatively limited experience. It seems to me where I have operated for pyonephrosis and hydronephrosis that the leaving of a permanent sinus leading from a hopelessly damaged kidney was an unsurgical measure. I am glad that Dr. Richardson has taken the ground that he has, for I believe it is not at present generally accepted surgical judgment in these cases. As I understand it, Dr. Richardson believes that a nephrotomy is indicated where there is pus in the kidney, and if this does not heal up a nephrectomy is called for. It seems to me that he has taken logical ground in saying that a hopelessly damaged kidney should be removed.

DR. RICHARDSON: In the time limit one has he does not read his paper, and many things which seem to him important are omitted — the time limit of course is proper; and it requires a lengthening of the discus-

sion to explain certain things that arise. I don't think Dr. Burrell has understood fully my views in reference to pyonephrosis. I believe with Fenger that every effort should be made to save the kidney, save the secreting substance which remains even in extensive non-tubercular inflammatory disease, in the pyonephrosis of calculus origin, for instance; but the operation of Fenger requires a long time, a year or more, and several operations. The first requisite is to drain that cavity in the kidney. In one of the cases reported, that of Kate Graham, I opened one of those dilated cysts of the kidney, but it did no good whatever. It would do no good unless the kidney was one large sac, then it would do this good: it would drain the kidney so as to permit the renewal of the ureteral stream and allow inflammation to subside. Fenger makes an incision through the whole posterior surface of the kidney, cuts through every partition between the different cysts, makes one large sac of a number of small sacs and lets the kidney drain through the loin one, two, three, five or six months and after that he does a second operation which is to restore the ureter. Finally, after a year or more the sinus heals, and the patient has saved the secreting surface of that kidney. It seems to me a most desirable and conservative procedure. Now, when we get in the very beginning a sacculated kidney like this I have shown, in women mostly, with a chronic and extensive and sapping septicemia, the question is whether they can stand this, whether it is wise to subject the patient to the long-continued drain of chronic septicemia. In the tubercular, cancerous or sarcomatous kidney it seems to me there is no difference of opinion. What I wanted to hear was the views of surgeons upon the desirability of immediate nephrectomy, as compared with Fenger's operation. If I have a patient strong, in good condition, and I find by section of the kidney cysts which could easily be removed and could unite all the sacculi of the kidney into one, and there was a good chance of restoration of the ureter, I should try that; but the fact is, in several of the cases palliation has been dallying and shillyshallying, and the patients in the end have died after nephrectomy, which if performed in the beginning would probably have been successful. I think it is a subject of very great importance, and I am extremely interested in it. I wish we could have more light thrown upon it.

DR. OGDEN: I have been very much interested in the work which Dr. Reynolds has undertaken. He has emphasized none too strongly the importance of catheterizing the ureters and the examination of the urine, in order to ascertain whether a pathological condition exists and to learn, especially from the urea, the comparative work of the two kidneys. The urine of the well kidney is often rather misleading if it is not borne in mind that the percentage of urea may be low even though the kidney is doing a normal amount of work. As Dr. Reynolds has said, this is probably due to a reflex activity of the kidney resulting from the manipulation in the bladder and ureter; in other words, the kidney acts faster than under normal circumstances, secreting more water, and, therefore, a lower percentage of urea.

The case of Mrs. G., to which both Dr. Richardson and Dr. Reynolds referred, is instructive, since it proved to be a calculous pyelitis, and yet crystalline elements could not be found in the sediment. This is a very common occurrence, and should be borne in

mind when a renal stone is suspected. Dr. Reynolds is to be congratulated on what he has done, and I hope that he will continue, for certainly it is a field for knowledge.

DR. RICHARDSON: I think it is already demonstrated, certainly to my complete satisfaction, that this method of investigation is essential and that there is no way of telling the condition of the kidneys, the comparative value of their excretory work, except by this method. I shall not feel satisfied hereafter unless in every instance where it is possible this method of investigation is adopted.

DR. W. L. BURRAGE: I find myself very much in accord with the views of Dr. Reynolds as enunciated here. There is one important point that I think he laid stress on in deciding as to nephrectomy, and that was the matter of determining whether the diseased kidney still has some secreting power. If one kidney has become entirely useless through disease, the shock attending its removal is very much less than in the cases where the secreting is shared by both kidneys. As regards irrigating diseased kidneys in cases of pyelitis, I remember a case I had some three years ago, where I felt at the time that irrigation was not of very much benefit to the patient. It was done by the method of putting the patient in the knee-chest position and pouring in the water through a funnel held above the patient's back and attached to the long kidney catheter. Raising her chest up and lowering the funnel the water ran out. I irrigated on several occasions. She had a large dilated pelvis on the side I irrigated, and the other kidney did not seem to be in good enough condition at that time, judging from the amount of urea secreted, to warrant operation. She has been in very fair condition since, and has only occasional attacks of paroxysmal pains in the side in contrast with almost constant pain before. One point in regard to the technique I think is of considerable importance, and that is the danger of introducing infection from the diseased side into the sound side. Of course it is necessary to use two ureteral catheters and to be especially cautious in washing out the bladder so as not to carry infection up into the well side. I think that is a real danger, and we should remember that it is possible to introduce infection into the pelvis of a sound kidney. Of course there must always be more or less traumatism in introducing an instrument into such a small tube so inaccessibly situated.

I think Dr. Reynolds is to be congratulated on his successful series of cases.

DR. GARCEAU: There was a case reported by Albarán in which the ureteral catheter was left in twenty-three days. I thought Dr. Reynolds would be interested to know that. It does not appear plain to me in the case Dr. Reynolds reported with crossed symptoms, that the diagnosis of stone on the right side could be absolutely eliminated.

DR. REYNOLDS: With regard to what Dr. Burrage said about infecting the sound kidney, I think that is a very important point. I do not believe we can do much by washing out the bladder, for I do not believe we can disinfect the bladder thoroughly enough to make that an important matter. I believe it is important to introduce the catheter only an inch or two into the ureter. I believe the little silver catheters are much safer for that purpose than the long webbing ones. Of course any catheter should be boiled and touch nothing until it gets into the bladder.

With regard to the benefit of washing out the renal pelvis I said in the paper that there were cases in which I thought it was useful as a palliative method. I have reported the one really considerable success I have had with it. I do not believe that, as a rule, it amounts to much.

With regard to Dr. Garceau's suggestion that there might very well be a stone in the pelvis of the other kidney in the first case I reported, I do not think that we can positively exclude it. There was no pus macroscopically; there was microscopically a certain amount of pus. There may have been a stone there, but the fact that the symptoms were relieved by diuretics makes me less inclined to believe it.

In closing, I want to emphasize especially a point which it seems to me has not received as much attention as it ought to in the past—the fact that the ureter is not, as I was taught in the school, an organ that is free from disease, but that a stricture of the ureter may cause excessively severe symptoms. With regard to the rapid cures by dilatation it certainly is very surprising. It is a wholly different matter from dilating strictures of the male urethra. I don't think it is a similar case. The anatomy is different. The ureter is a tube which nature intends to be very distensible, which we know distends very rapidly the moment there is an obstruction which may be over-distended. I don't know whether that has anything to do with the fact that distending it to two or three times its normal size seems to relieve symptoms suddenly. I shall never forget a case Dr. Prescott was kind enough to do the autopsy of, two or three years ago, a woman I saw in the suburbs, a victim of the old-fashioned belief that any man who does anything for a prolonged first stage of labor does meddlesome midwifery. When I saw her she was just dying; she died one-half hour later of exhaustion from pain. We had an autopsy and Dr. Prescott found no organ abnormal except the ureters. The walls were perfectly translucent and uninfamed, but they were distended to a simply enormous size from the brim of the pelvis up, the head having been in the pelvis and having evidently occluded the lower portions. They were normal ureters, and had not been pressed upon until within at most two days. They were dilated to the size of the base of one's thumb. As to the source of strictures of the ureter I am unable to offer any explanation.

DR. EDGAR GARCEAU read a paper entitled

CYSTITIS IN YOUNG GIRLS, WITH A REPORT OF THREE NEPHRECTOMIES.

DR. REYNOLDS: There is only one thing that comes into my mind to say, and that is a little on one side of Dr. Garceau's paper, but is in support of the point that he makes that vesical symptoms may often be dependent on renal causes without any symptomatology to call attention to the kidney. The further I get into the urinary diseases of women the more prone I am to look above the bladder for the source of the trouble, and the more convinced I am, first, of the frequency of transitory inflammatory affections of the mucous membrane of the ureter and kidney, and secondly, of the fact that in all such processes the kidney and ureter are apt to be one and act together. Dr. Garceau brought up that point with regard to tuberculosis and I am strongly inclined to believe that tuberculosis at one point of the urinary tract usually means tuberculosis at other points of the urinary tract.

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REPORT UPON THE AFTER-CARE OF THE INSANE.

We are glad to notice the final report of the Committee of the Neurological Association upon the care of the convalescent insane. At the meeting in Washington, 1894, Drs. H. R. Stedman, C. L. Dana and F. X. Dercum were appointed a committee to investigate this important question. The appointment of such a committee was the outcome of a paper which was read and discussed at that meeting of the Neurological Association. The work was begun by issuing a circular letter to interested persons in Massachusetts, New York and Pennsylvania, and later enlarged to include the opinion of authorities in other parts of the country.

The definite purpose of the investigation, as stated in the circular letter, was to frame some feasible plan for the aid and supervision of discharged pauper insane patients immediately after their return from asylums to public life. This letter goes on to speak of the hesitation which asylum physicians often have of setting at liberty certain patients who are so far recovered as to be no longer suitable for hospital treatment, but who may, when thrown suddenly on their own resources, lapse into those conditions which originally gave rise to their insanity. The stigma, also, which unfortunately attaches to those who have at one time been inmates of an asylum, often prevents such persons, though fully recovered, from obtaining employment.

In consideration of these facts, Dr. Fabret, in France, in 1841 founded an association for the protection and assistance of this class. The movement since his time has grown materially, so that at present, such systems are in operation throughout France and also in England and Switzerland. The function of these after-care societies is to find for discharged patients suitable homes and places of employment, to provide such financial aid as they may require, and in general to have them under supervision for the first month or two after discharge.

The American committee, feeling that the same need exists in this country, is strongly of the opinion that similar means of relief after discharge should be provided, supplementary to the work carried on within our institutions. The committee concluded its letter by asking the following definite questions, to which replies were requested:

"1. What are your views as to the practical utility of such an undertaking, generally speaking?

"2. In your opinion, should such an association be entirely a private charity, or would the co-operation of the State in its work be practicable?

"3. Do you think it probable that benefit to a sufficient number of patients would result from the establishment of convalescent homes as departments of, but at a distance from, our State Hospitals for the insane? This inquiry is suggested by the proved usefulness of convalescent homes as adjuncts to general hospitals, and of summer cottages in connection with private institutions for the insane.

"4. (For superintendents of hospitals for the insane.) Will you kindly give a rough estimate of the probable number of patients who have been discharged during the past year from the hospital under your charge, whom you would consider deserving of, and likely to be benefited by, such a charity, mentioning any especial instances that may occur to you."

The reply to these questions was most satisfactory and threw much light on the general question. Most of the answers were from superintendents of hospitals for the insane, whose practical experience proved of great value. Of the entire number of correspondents but six were either doubtful of the proposed scheme or decidedly opposed to it. Their reasons were that the number of cases likely to be benefited by such aid is too small to make it advisable; that the project is inexpedient, and that while theoretically excellent it would be impossible in practice. The overwhelming majority, however, were in favor of some such plan and expressed their decided belief in the advantages to result from adequate aid societies for discharged insane patients, who are recovered, convalescent, or improved.

Regarding the number likely to be benefited the replies were not of much assistance, probably owing to the fact that attention of the superintendents had never been specifically directed to this point up to this time. It was the general opinion that such aid associations, if established, should be begun as private organizations and so continued until their utility be demonstrated; then no doubt State aid could be obtained.

In the question asked of the advisability of establishing State homes for convalescent patients there was considerable diversity of opinion. Here as in the other questions the most decided opposition came from members of Lunacy and Charity Boards.

From what has gone before, it will appear that there is an almost unanimous sentiment among those best capable of judging that certain systematic means of assistance for the discharged insane is altogether de-

sirable. That such organizations have succeeded so admirably in Europe would seem to be a sufficient argument in their favor. Certainly no class in the community is more worthy of the care and temporary protection of the State than persons who may yet lead useful lives provided, only, means are given for the possibility of a fair start. There are already in operation in this country numerous societies whose function it is to provide employment for persons discharged from penal institutions. Why a like privilege should be denied those, who, often through no fault of their own, have been temporarily banished from society, it is hard to conceive. It is a distinct sign of progress that in many States we have institutions for the treatment, and more particularly for the employment of persons suffering from epilepsy. This movement, too, has been slow in coming, but that it will be permanent no reasonable person can doubt. With so favorable a report as the one before us, it must also be that that most worthy class, the partially or completely recovered insane, should have every possible means through private or State aid, of resuming a normal and useful life. We most sincerely hope that the recommendations of the committee may bring speedy and fruitful results.

CHANGES IN THE SKIN AND VISCERA CAUSED BY THE X-RAYS.

In a paper¹ presented at the International Medical Congress in Moscow, Oudin, Barthélemy and Darier report 44 cases, collected from various sources, where changes in the skin and viscera have been noted after exposure to the Röntgen rays. In 400 observations of their own an abnormal reaction followed in only four, and in these it was very slight. The changes in the skin may be of an acute type, as redness, pain, swelling, vesiculation and even necrosis, followed by cicatrization, or they may be of a chronic type showing dermatitis, thickening, loss of elasticity and sensation and scaling. In the third place are falling of the hair and nails. The inflammatory changes are slight or serious, superficial or deep, according to their position and the constitution of the patient, and are very similar to other burns of electrical origin. They are late in making their appearance, appearing often several weeks after the last sitting. These changes are painful; in some cases there is lessened sensation, and hyperesthesia has been observed. They are very slow in healing, and this is perhaps their most prominent attribute. They are often characterized by deep pigmentation. The deeper and more serious lesions are apt to occur when the rays have been applied to portions of the skin that were not yet healed or that were otherwise affected, as in lupus, and different forms of dermatitis. Individual susceptibility appears to be an important factor, however. The Röntgen rays, on account of their destructive action on the hairs in many instances, were for a time regarded as of prob-

¹ Monatshefte f. prakt. Derm., November 1, 1897.

able future value as a depilatory. Experience has shown unfortunately that the effect of the x-rays, in sufficient strength to produce falling of hair, often oversteps this mark and produces intense inflammation and necrosis, so that at present their use for this purpose must be very limited.

In comparing the effects of burns from electrical lights and dynamos with those from the x-rays, the writers state that in electrical burns all the tissues, from the epidermis down to the bones, may be affected; they take the form of small, round, polygonal patches of grayish color, with irregular edges and a small white seam, and a darkish centre. These patches are sometimes very hard, sometimes soft, and are not painful. The crusts are not quickly cast off and require a long time for healing.

Experiments made upon guinea-pigs by exposing their skin to the Röntgen rays, and thus producing an alopecia gave the following results:

(1) The x-rays, or the electrical current sometimes, under conditions that are not well understood, produce an alopecia on the skin of guinea-pigs which may not show itself from one to two months.

(2) This alopecia makes its appearance suddenly and then increases in extent, without any necrosis or impairment of sensation.

(3) Histologically the hairs that fall out show no very marked atrophy of their bulbar part. The epidermis, however, is thickened in all its layers, there is a great increase in the kérato-hyalin, and an excessive atrophy of the follicles. The corium and the blood-vessels appeared to be little affected. These changes in the epidermis and the atrophy of the hair follicles are regarded as a reaction to an irritant of remarkable strength.

MEDICAL NOTES.

BEQUEST TO JEFFERSON MEDICAL COLLEGE.—The Jefferson Medical College, Philadelphia, has received, by the will of the late C. D. Shain, \$7,000 for scholarships and prizes.

POPULARITY OF GLASS EYES.—According to a German authority 2,000,000 glass eyes are made every year in Germany and Switzerland, while one French house manufactures 800,000 of them annually.

BIOGRAPHY OF ERNEST HART.—The widow of the late Ernest Hart is collecting the correspondence of her husband, together with information bearing upon his public work, to be used in preparing a biography of this active and well-known man.

DISSECTING IN PARIS.—According to the *Gazette des Hôpitaux* (Paris) there is a great scarcity of dissecting material in the medical schools of the French capital—less than half a body for each of the 1,573 students who have been dissecting there this winter.

THE CONGRESS OF FRENCH ALIENISTS AND NEUROLOGISTS.—The ninth Congress of French Alienists and Neurologists will be held this year at Angers on

August 1st and following days. The questions proposed for discussion are: (1) Post-Operative Psychical Disturbances; (2) The Part played by Arteritis in the Pathology of the Nervous System; (3) Transient Delirium from the Medico-Legal Point of View.

PRACTICE OF MEDICINE IN HAWAII.—A license is now required in order to practise medicine or surgery in the Hawaiian Islands, such license to be granted only upon the written recommendation of the board of health.

MR. GLADSTONE'S HEALTH is reported to have improved greatly since his return from Cannes. As this improvement has come since the invalid went to Bournemouth, on the south coast of England, it is regarded by many as a strong argument in favor of home resorts.

STOCK GROWERS ON VIVISECTION.—A recent convention of the National Stock Growers Association held in Denver, Col., unanimously adopted resolutions calling upon the Congressmen of the States there represented to cast their vote against any measure that will prevent scientific research to be continued in the interests of the animal kingdom.

THE LOUISIANA STATE BOARD OF HEALTH.—It is stated in the March number of the *New Orleans Medical and Surgical Journal* that Dr. Edmond Souchon has been elected president; Dr. H. F. Reynaud, vice-president; Mr. Frank Zocharie, attorney; Dr. John Callan, chief sanitary inspector; and Dr. S. J. Théard, assistant sanitary inspector.

A COMMISSION ON TUBERCULOSIS.—On the motion of M. Brouardel, the Paris Academy of Sciences has appointed a commission to study the question of the propagation of tuberculosis. The commission is to consist of the six members of the section of medicine and surgery, the two permanent secretaries and MM. Brouardel, de Freycinet, de Jonquières, Chauveau, Duclaux, Arm, Gautier.

THE GERMAN CONGRESS OF INTERNAL MEDICINE.—The sixteenth German Congress of Internal Medicine will be held in Wiesbaden from the 13th to the 16th of April. Dr. Moritz Schmidt, of Frankfurt, will preside. The subjects discussed will be "The Teaching of Clinical Medicine" (von Ziemssen and von Jacksh), "Intestinal Auto-intoxication and Anti-sepsis" (Müller and Brieger). Professor Leo, of Bonn, will read a paper on "The Present Status of the Treatment of Diabetes Mellitus."

MEAT FROZEN FOUR YEARS AGO.—Whether there are any epicureans who will relish viands four years old is a matter for gastronomes to decide. The health commissioner of Denver, Col., without waiting for a decision from the connoisseurs, has seized and destroyed 40,000 pounds of such meat. It is said that the killing was done in Omaha, Neb., in 1894, and that the meat was frozen and hung in a refrigerator, until the dealers found a favorable opportunity to feed with it some community which did not know of its

antecedents. — *Journal of the American Medical Association*.

THE SIPHON DRAINAGE OF LARGE CAVITIES. — Heaton (*British Medical Journal*, January 22, 1897) describes a familiar apparatus for the continuous siphonage of the contents of large cavities, with an important modification. As is well known, siphonage is commonly seriously interfered with by the sucking of the soft walls of the cavity against the openings in the rubber or glass tubes employed, and consequent interference with the action of the siphon. Heaton has employed with success an outer perforated tube, and an inner tube which is connected with the siphon. Fluid trickles into the outer tube through the perforations and is then sucked up through the open end of the inner tube. This apparatus has answered its purpose well in six cases in which it has been employed.

THE WIDAL REACTION IN THE NEW-BORN. — Dr. Alfred Stengel recently presented an interesting case in the clinical amphitheatre of the University of Pennsylvania. The patient was in the ninth month of pregnancy and the second week of an attack of typhoid fever. Her temperature had been quite high during the attack, which had run a typical course and given the Widal reaction. The child was born with a temperature of 102°, which gradually subsided within a period of three days. The Widal reaction was sought for, but not secured. Two days after the birth of the child the mother's temperature had a sudden exacerbation, but gradually subsided, and both mother and child are now doing well.

CASTRATION FOR RAPE IN KANSAS. — A bill has been introduced into the Kansas Legislature, referred to the Committee on Public Health and Hygiene, and by them reported back with the recommendation that it pass. It provides that every person who shall be convicted of rape, and every person who shall be convicted of incest, and every minister, clergyman, priest or teacher, having charge of any church or other religious body or school, who shall have illicit connection with any unmarried virgin female under twenty-one years of age of his charge or school, and every guardian of any female ward under the age of eighteen years who shall defile her, shall be punished by imprisonment at hard labor for a period not less than five nor more than twenty years, and in addition to such punishment shall be castrated.

"THE PASSING OF THE REFLEX." — Dr. Patrick (*Intercollegiate Medical Journal*, February, 1898) writes as follows: "And this leads me to mention what has already begun and what, God grant, may soon be consummated — the passing of the reflex. When to the nerve-specialist comes a case of epilepsy, with a note from the family physician saying that the ovaries have been removed without effect, and so perhaps the trouble is in the brain, or a case of convulsive tic, with the message that the spasm has continued in spite of canterization of the turbinates, or, as occurred to me a few days ago, he sees a born neuropath with

typical traumatic neurosis who has undergone five pelvic operations for relief of her nervous symptoms, he groans in spirit and looks longingly forward to the millennium, when the man who operates shall have or procure an adequate understanding of that for which he cuts. In the meantime, under the keen scrutiny and rigid requirements of neurology, the so-called reflex as a cause of great nervous disorder is gradually being pushed into its rightful place, that is, among the relatively unimportant curiosities of etiology."

BOSTON AND NEW ENGLAND.

ACUTE INFECTIOUS DISEASES IN BOSTON. — For the two weeks ending at noon, March 16, 1898, there were reported to the Board of Health, of Boston, the following numbers of cases of acute infectious disease: diphtheria 73, scarlet fever 41, measles 48, typhoid fever 16.

DEATHS FROM CEREBRO-SPINAL MENINGITIS. — There were reported in Massachusetts, between January 1, and March 12, 1898, the following deaths from cerebro-spinal meningitis:

Week ending Jan. 8.	8
" " " 15.	5
" " " 22.	5
" " " 29.	6
Week ending Feb. 5.	6
" " " 12.	5
" " " 19.	7
" " " 26.	5
Week ending Mar. 5.	9
" " " 12.	7
	<hr/> 63

Of these, there were in

Boston.	20
Worcester.	9
Malden.	6
Holyoke.	10
Lynn.	3
Chelsea.	4
Clinton and Quincy, each.	2
Newton, Cambridge, Fitchburg, Melrose, New Bedford, Somerville, Woburn, each.	1
	<hr/> 63

The above figures were furnished the JOURNAL by the State Board of Health, and exhibit in a striking way the continued prevalence and wide distribution of the disease in this State.

THE BOSTON LYING-IN HOSPITAL. — The sixty-fifth annual report of the Boston Lying-in Hospital, which has just been received, shows that during 1897, 633 women were cared for in the wards and 1,679 in the Out-patient Department. Of the 633 patients treated in the wards, 537 were residents of Boston, and 411, or 64 per cent., were married women. The total expense of carrying on the hospital for the year was \$20,235.89, and the cost per week of each patient treated was \$14.07. During the year legacies amounting to \$45,000 were received. Although a generous response has been made to the appeal for contributions for the support of the hospital, it is to be regretted that the annual donations, together with the current receipts from invested funds and from the hospital, have been insufficient to meet the necessary current expenditures. This report completes the record of the twenty-fifth

year of the hospital since its reopening, January 1, 1873, and also the twenty-fifth year of service of the present visiting physician, Dr. Wm. L. Richardson, and of the matron, Mrs. E. J. A. Higgins.

NEW YORK.

RABIES AND THE NEW YORK BOARD OF HEALTH.—Dr. H. M. Biggs, pathologist and director of the bacteriological laboratories of the Board of Health, has just sent in, through Dr. Charles F. Roberts, sanitary superintendent, a report in which he recommends that the Department announce to the medical profession and the public its readiness to administer the Pasteur treatment for the prevention of rabies in human beings, free of charge, to any residents of New York who may be bitten by dogs proved to be rabid. He directs attention to the fact that within a week the body of a dog which had bitten five persons has been sent to the laboratory to determine whether it was rabid or not. He also encloses the clinical history of a recent case of rabies in the human being, in which the brain of the patient was forwarded to the laboratory to be tested, and inoculations made with it were followed by the production of typical rabies in the animals inoculated. Three other cases are now under investigation in the laboratories of the Department.

He then goes on to say "Rabies, or hydrophobia, is so terrible and so fatal a disease that, although comparatively few cases occur in New York and its vicinity, the prevention of these few is of great importance from a humanitarian standpoint. During the past five years fourteen deaths have been reported from rabies in the cities of New York and Brooklyn, while some additional deaths should undoubtedly be included to allow for those who have gone abroad for treatment, and, receiving it too late, have died there. During 1896 there were treated at the New York Pasteur Institute 109 persons from New York State who had been bitten by dogs or animals supposed to be rabid. The bodies of four dogs brought to the laboratories of the Department of Health within the last year were proven by the results of inoculating rabbits to have had undoubted rabies. Three of these animals had bitten one or more human beings. . . . The treatment for rabies, as originated by Pasteur, is still used with but slight modifications."

After describing the method and giving statistics from the Pasteur Institute of Paris, Dr. Biggs adds: "The experimental work on rabies carried on in the laboratories of the Department of Health covers a period of almost twelve months, and has consisted in studies on the production of the disease by various methods of inoculation, and the creation of immunity to the disease in animals by the preventive method of treatment. The preventive treatment has been for the most part applied to guinea-pigs, and nearly 50 per cent. of the test animals have been made resistant to the disease where subdural inoculation follows the treatment. A more severe test could not be devised. The facilities for drying and preparing the cords,

which, up to a recent period, have not been as perfect as could be wished for, are now excellent. The new laboratory in the vaccine building contains every means for carrying on the treatment in the most satisfactory manner. . . . The treatment reduces the mortality of those bitten by rabid dogs from 10 per cent. or more, to less than one per cent.

PROFESSOR CHITTENDEN RECEIVES AN APPOINTMENT AT COLUMBIA.—The trustees of Columbia University have chosen Prof. Russell H. Chittenden, Ph.D., of Yale University, to be the director of the department of physiological chemistry in the College of Physicians and Surgeons, the medical school of the University. The directorship in question was established a year ago, this department being made a distinct one from that of chemistry at that time. Professor Chittenden was graduated from the academic department of Yale in 1874, and studied for two years afterwards at the University of Heidelberg. He became an instructor in the Sheffield Scientific School in 1876, and six years later was elected professor of physiological chemistry of Yale University. He has given expert testimony in many important criminal cases.

THE NURSES' EXHIBIT AT THE HEALTH EXPOSITION.—On March 10th about three hundred trained nurses from the various hospitals of the city met at the Grand Central Palace at the call of Miss Mary E. Wadley, of the Bellevue training-school, to discuss the arrangements for the Trained Nurses' Educational Exhibit to be held in connection with the International Health Exposition in New York from April 25th to May 31st. Dr. Stephen Smith made an address on the growth of the trained nurse as a hospital factor, and a number of practical suggestions were made for the proposed exhibit. The New York Hospital Training School will show an ideal sick-room. Bellevue will contribute a room prepared for a surgical operation, the Post-Graduate will reproduce a section of its babies' ward, Mount Sinai will have a booth arranged for eye and ear service, and the Presbyterian will present model miniature hospital wards. It is also proposed to illustrate the former and present methods of treating the insane. Medals will be awarded the trained nurses for the best typhoid-fever charts, the most inviting invalid's luncheon tray, and for the best designs for any article used in the sick-room by physician, nurse or patient.

BEQUESTS TO CHARITIES.—The will of the late Amos R. Eno, the owner of the Fifth Avenue Hotel property, leaves a large amount to charities. Among the institutions benefited are the Demilt Dispensary, New York Cancer Hospital, Society for the Relief of the Ruptured and Crippled, Training School for Nurses and the New York Institution for the Blind, each of which receives \$5,000.

DEATH OF DR. JOHN H. MEASE.—Dr. John H. Mease, a prominent physician of Oswego, New York, died at his home in that city on March 11th, at the

age of seventy-one. He received the degree of M.D. fifty years ago, and had practised in Oswego for the last twenty-seven years.

Miscellany.

A TRAMP WITH PROGRESSIVE MUSCULAR ATROPHY.

DR. TARGOWLA gives an account, in a recent number of the *Nouvelle Iconographie de la Salpêtrière*, of a tramp, aged sixty-five, who has suffered for thirty years from progressive muscular atrophy of the Aran-Duchenne type.

The curious point about the case is the extraordinary ingenuity of the tramp in devising means for enabling him to lead his nomad life although his limbs are disabled. In order to sit down he first falls on his knees, then throws himself back upon his ischial tuberosities. He cannot crouch, so he is obliged to lean on his hands and knees in order to defecate. When naked and without support he cannot stand upright, but when dressed and strapped up he can do so, leaning on two sticks. In order to rise from the sitting position he has to bear on his hands and knees, and climb up along some fixed object. To keep himself upright he has invented a complicated system of straps; these fix his knees and thus give him a fulcrum for his hips, the muscles of which are unimpaired. His knees are protected by leather caps. The man is always on the move, walking from two to three kilometres a day. This he is able to do by means of shoes of his own invention; these are very large, 35 centimetres long, 14 wide, and he stuffs the inside of them so as to protect his toes, which have a tendency to claw-like curvature.

He has no home, and says of himself that he is the only citizen of the French Republic who pays no taxes, though it can hardly be said that he has "no visible means of support." He is, however, a philosopher, and, unlike Job, does not curse the day that he was born; his philosophy may be partly due to the fact that he has no wife to reproach him with his afflictions. He is gentle and amiable in character, and to a certain degree educated, so that he is always well received by the country people, who let him sleep in the stables and cow-houses. He much prefers his wandering, homeless life to being admitted to a hospital, where he fears he might be deprived of his supporting apparatus. — *British Medical Journal*.

Correspondence.

THE MEDICAL REGISTRATION BILL.

MR. EDITOR:—In view of your vigorous criticism of Professor James's speech, it seems but fair to remind your readers that there are a good many physicians who, although they admit that the evils which the amended Registration Bill sought to cure are real and serious, yet think that the proposed measure was not a wise one and should not pass. This is also the opinion of the undersigned.

Yours truly,

JAMES J. PUTNAM, M.D.

[We distinguish between the amendment to the Registration Bill, and Professor James's method of attacking it. The former is debatable if you choose; the latter can only be condemned by an educated practitioner of medicine who respects his profession and himself. — ED.]

METEOROLOGICAL RECORD

For the week ending March 5th, in Boston, according to observations furnished by Sergeant J. W. Smith, of the United States Signal Corps:—

Date.	Baro- meter	Thermom- eter.		Relative humidity.		Direction of wind.		Velocity of wind.		We'th'r. •		Rainfall in inches.		
	Daily mean.	Daily mean.	Maximum.	Minimum.	8.00 A. M.	8.00 P. M.	Daily mean.	8.00 A. M.	8.00 P. M.	8.00 A. M.	8.00 P. M.			
		Daily mean.	Maximum.	Minimum.	8.00 A. M.	8.00 P. M.		8.00 A. M.	8.00 P. M.	8.00 A. M.	8.00 P. M.			
S...27	29.94	34	43	26	75	76	76	N.W.	N.W.	8	8	C.	C.	.10 .18 .24
M...28	29.88	34	40	27	68	81	74	W.	N.W.	12	7	C.	C.	
T...1	29.92	32	40	25	76	76	54	N.	N.W.	10	10	O.	C.	
W...2	30.10	36	45	26	73	55	54	N.W.	S.	11	5	C.	O.	
T...3	30.20	37	42	32	98	77	86	N.E.	N.E.	8	7	N.	C.	
F...4	30.18	34	37	31	88	96	92	N.	W.	3	12	O.	N.	
S...5	30.10	36	43	29	84	59	72	N.W.	W.	12	10	C.	C.	
Mean														.47

* O., cloudy; C., clear; F., fair; G., fog; H., hazy; S., smoky; R., rain; T., threatening; N., snow. † Indicates trace of rainfall. — Mean for week.

RECORD OF MORTALITY

FOR THE WEEK ENDING SATURDAY, MARCH 5, 1898.

Cities.	Estimated population.	Reported deaths in each.	Deaths under five years.	Percentage of deaths from					
				Infectious diseases.	Acute lung diseases.	Diarrheal diseases.	Typhoid fever.	Diphtheria and croup.	
New York	3,438,899	1218	425	9.84	13.36	1.36	.48	3.44	
Chicago	1,619,226	—	—	—	—	—	—	—	
Philadelphia	1,314,256	—	—	—	—	—	—	—	
Brooklyn	1,160,000	—	—	—	—	—	—	—	
St. Louis	570,000	183	44	3.30	19.80	—	1.85	—	
Baltimore	550,000	242	86	6.97	19.27	1.23	1.23	1.23	
Boston	517,732	194	51	9.38	19.24	1.04	—	3.64	
Cincinnati	405,000	107	—	6.51	11.16	.93	.98	—	
Cleveland	350,000	106	33	4.70	10.34	.94	—	2.82	
Pittsburg	285,000	97	29	19.57	17.51	7.21	3.09	1.03	
Washington	277,000	—	—	—	—	—	—	—	
Milwaukee	275,000	—	—	—	—	—	—	—	
Worcester	105,050	47	21	11.05	14.91	2.31	—	6.39	
Nashville	87,754	30	6	6.66	21.11	3.33	3.33	—	
Fall River	86,919	33	17	10.00	33.33	10.00	—	—	
Lowell	87,196	24	8	4.16	34.28	4.16	—	—	
Cambridge	86,812	33	12	3.03	12.12	3.03	—	—	
Lynn	65,220	23	3	—	15.05	—	—	—	
Charleston	65,165	26	10	3.85	19.25	—	—	3.85	
New Bedford	62,416	18	6	11.11	11.11	5.55	—	—	
Lawrence	55,510	23	15	—	15.05	—	—	—	
Springfield	54,790	21	9	—	38.08	—	—	—	
Holyoke	42,864	21	1	14.28	15.52	4.76	—	4.76	
Portland	40,000	—	—	—	—	—	—	—	
Salem	36,062	13	4	—	15.38	—	—	—	
Brockton	35,553	7	3	14.28	—	—	14.28	—	
Malden	32,894	11	2	—	33.33	—	—	—	
Chelsea	32,716	13	2	—	—	—	—	—	
Haverhill	31,406	9	1	—	22.22	—	—	—	
Gloucester	29,775	—	—	—	—	—	—	—	
Newton	28,990	6	1	—	—	—	—	—	
Fitchburg	28,392	7	2	14.28	14.28	—	—	—	
Taunton	27,812	6	0	—	16.06	—	—	—	
Quincy	22,562	7	2	—	28.56	—	—	—	
Pittsfield	21,891	—	—	—	—	—	—	—	
Waltham	21,812	—	—	—	—	—	—	—	
Everett	21,575	8	2	—	12.50	—	—	—	
Northampton	17,448	5	1	—	—	—	—	—	
Newburyport	14,794	—	—	—	—	—	—	—	
Amesbury	10,920	—	—	—	—	—	—	—	

Deaths reported 2,657; under five years of age 886; principal infectious diseases (small-pox, measles, diphtheria and croup, cerebro-spinal meningitis, diarrheal diseases, whooping-cough, erysipelas and fevers) 230, acute lung diseases 493, diphtheria and croup 67, diarrheal diseases 42, scarlet fever 31, measles 30, whooping-cough 24, typhoid fever 18, cerebro-spinal meningitis 9, malarial fever 5, erysipelas 4.

From scarlet fever New York 26, Boston 2, Cincinnati and Melrose 1 each. From measles New York 18, Pittsburg 5, Baltimore and Cincinnati 2 each, St. Louis, Boston and Cleveland 1 each. From whooping-cough New York 10, Baltimore 5, Cincinnati and Pittsburg 3 each, Boston, New Bedford and Somerville 1 each. From cerebro-spinal meningitis Boston 3, Providence, Worcester, Somerville, Holyoke, Chelsea and Fitchburg 1 each. From malarial fever New York 3, St. Louis 3. From erysipelas Boston 2, Baltimore and Somerville 1 each.

In the thirty-three greater towns of England and Wales, with an estimated population of 11,218,378, for the week ending February 26th, the death-rate was 20.9. Deaths reported 4,500; acute diseases of the respiratory organs (London) 416, measles 217, whooping-cough 112, diphtheria 69, fever 38, diarrhea 34, scarlet fever 34.

The death-rates ranged from 12.6 in Croydon to 30.2 in Wolverhampton; Birmingham 21.6, Bradford 14.5, Bristol 21.2, Cardiff 21.3, Derby 12.9, Gateshead 25.1, Hull 18.4, Leeds 22.3, Liverpool 24.7, London 21.9, Manchester 21.8, Newcastle-on-Tyne 18.9, Nottingham 22.5, Salford 21.3, Sheffield 20.9, Sunderland 18.1.

OFFICIAL LIST OF CHANGES IN THE STATIONS AND DUTIES OF OFFICERS SERVING IN THE MEDICAL DEPARTMENT, U. S. ARMY, FROM MARCH 5, 1898, TO MARCH 11, 1898.

Leave of absence for six months on surgeon's certificate of disability is granted CAPTAIN NORTON STRONG, assistant surgeon, to take effect upon the expiration of the ordinary leave of absence granted him.

The following named medical officers are relieved from duty at the Army Medical School in this city, to take effect upon completion of the course at the school, ending April 1, 1898, and ordered to take station as follows:

FIRST-LIEUT. HENRY PAGE, assistant surgeon, Presidio of San Francisco, Cal.

FIRST-LIEUT. BAILEY K. ASHFORD, assistant surgeon, Fort Sam Houston, Tex.

FIRST-LIEUT. HENRY A. WEBBER, assistant surgeon, Fort Reno, O. T.

FIRST-LIEUT. JERE B. CLAYTON, assistant surgeon, Fort Clark, Tex.

FIRST-LIEUT. BRAINARD S. HIGLEY, JR., assistant surgeon, Fort Niobrara, Neb.

FIRST-LIEUT. GEORGE RAUCHFUSS, assistant surgeon, Fort Apache, Ariz.

FIRST-LIEUT. THOMAS S. BRATTON, assistant surgeon, upon the arrival at Fort Niobrara, Neb., of FIRST-LIEUT. BRAINARD S. HIGLEY, JR., assistant surgeon, will be relieved from duty at that post and ordered to Fort Leavenworth, Kan., for duty.

A board of medical officers to consist of COL. DALLAS BACHE, assistant surgeon-general, MAJOR WALTER REED, surgeon, MAJOR JAMES C. MERRILL, surgeon, CAPTAIN WILLIAM H. ARTHUR, assistant surgeon, FIRST-LIEUT. ALEXANDER N. STARK, assistant surgeon, is constituted to meet at the Army Medical Museum Building in this city on Monday, May 2, 1898, at 10 o'clock A. M. for the examination of candidates for admission to the medical corps of the Army.

OFFICIAL LIST OF CHANGES OF STATIONS AND DUTIES OF COMMISSIONED OFFICERS OF THE UNITED STATES MARINE-HOSPITAL SERVICE FOR THE SEVEN DAYS ENDING MARCH 10, 1898.

BAILHACHE, PRESTON H., surgeon. To proceed to Cape Fear Quarantine, Southport, N. C., as inspector. March 8, 1898.

PECKHAM, C. T., passed assistant surgeon. Upon being relieved by Passed Assistant Surgeon W. J. S. STEWART, to proceed to Pittsburg, Pa., and assume command of Service. March 8, 1898.

PETTUS, W. J., passed assistant surgeon. Relieved of command of Service at Norfolk, Va., and to remain in command of Cape Charles Quarantine. March 10, 1898.

MAGRUDER, G. M., passed assistant surgeon. To rejoin station, Memphis, Tenn. March 8, 1898.

WERTENBAKER, C. P., passed assistant surgeon. To proceed to Middleboro, Ky., for special temporary duty. March 10, 1898.

BROWN, B. W., passed assistant surgeon. To proceed to Norfolk, Va., and assume command of Service. March 7, 1898.

STEWART, W. J. S., passed assistant surgeon. Upon being relieved by Passed Assistant Surgeon G. M. MAGRUDER, to rejoin station, Vineyard Haven, Mass. March 8, 1898.

OAKLEY, J. H., passed assistant surgeon. Granted leave of absence for one month. March 4, 1898.

HASTINGS, HILL, assistant surgeon. To rejoin station, New Orleans, La. March 8, 1898.

VON EZDORF, R. H., assistant surgeon. To proceed to New Orleans, La., for duty and assignment to quarters. March 4, 1898.

FOSTER, M. H., assistant surgeon. To proceed to Chicago, Ill., for duty and assignment to quarters. March 10, 1898.

APPOINTMENTS.

RUDOLPH VON EZDORF, of the District of Columbia, and MILTON H. FOSTER, of Pennsylvania, commissioned as assistant surgeons.

SOCIETY NOTICES.

BOSTON SOCIETY FOR MEDICAL IMPROVEMENT.—A regular meeting of the Society will be held at the Medical Library, 19 Boylston Place, on Monday evening, March 21st, at 8 o'clock.

Dr. W. M. Conant will read a paper on "Three Cases of Intestinal Resection."

Dr. E. G. Brackett: "Epidemic Infantile Paralysis."

JAMES G. MUMFORD, M.D., Secretary, 197 Beacon St.

SUFFOLK DISTRICT MEDICAL SOCIETY.—The Section for Obstetrics and Diseases of Women will meet at 19 Boylston Place, Wednesday, March 23, 1898, at 8 P. M.

Dr. Geo. H. Washburn: "Caesarean Section vs. Symphysectomy."

Dr. J. M. Crowley: "Omental Hernia in Left Labium Majus."

F. W. JOHNSON, M.D., Chairman.

C. H. HARR, M.D., Secretary.

AMERICAN MEDICAL ASSOCIATION.

NOTICE TO ALL INTERESTED IN NEUROLOGICAL PROGRESS.

ST. LOUIS, MO., March 5, 1898.

All who classify themselves under the above caption will confer a favor upon the undersigned by sending a brief memorandum with accurate reference data attached, of actual progress in Neurology and Neurology for the past year, or any facts which they may consider so classified, to be epitomized or referred to in his forthcoming Presidential Address to the Section on Neurology and Medical Jurisprudence of the American Medical Association at its meeting at Denver in June proximo.

Communications are also solicited to be presented to the Section either in person or by letter.

Respectfully submitted, C. H. HUGHES, M.D., Chairman of Section on Neurology and Medical Jurisprudence.

BOOKS AND PAMPHLETS RECEIVED.

Note on Diastatic Preparations. By Willis G. Tucker, M.D. Ph.D., Albany. Reprint. 1898.

The Virile or Bulbo-Cavernous Reflex. By Prof. C. H. Hughes, M.D., St. Louis. Reprint. 1898.

The Operative Treatment of Hemorrhoids. By Parker Syme, M.D., New York. Reprint. 1898.

Proceedings of the Pathological Society of Philadelphia. February 15, 1898. New Series, Vol. I, No. 4.

Examination of the Urine as a Means of Diagnosis. By Theodore W. Schaefer, M.D., Kansas City, Mo. Reprint. 1897.

Can the Dyspareunia Abuse be Corrected? A Case of Hysterical Dyspareunia. By Llewellyn Eliot, A.M., M.D., Washington, D. C. Reprints. 1897-98.

Refrigeration as a Means of Preservation of Bodies for Use in the Dissecting-Room. By Edmund W. Holmes, A.B., M.D., Pennsylvania. Reprint. 1897.

Chancres of the Lip Probably Acquired through the Use of a "Rouge Stick." By Douglass W. Montgomery, M.D., of San Francisco, Cal. Reprint. 1897.

The Diagnosis of Primary Sarcoma of the Pleura from the Cells found in the Pleuritic Exudate. By Aldred Scott Warthin, M.D., of Ann Arbor, Mich. Reprint. 1897.

Proceedings of the American Medico-Psychological Association at the Fifty-third Annual Meeting held in Baltimore, May 11-14, 1897. Published by the Association. 1897.

Irrigation in Purulent Conjunctivitis, with a Combined Retractor and Suction-Syringe. King Arthur's Medicine. By George M. Gould, A.M., M.D., and Walter L. Pyle, A.M., M.D., Philadelphia. Reprints. 1897.

The Essentials of Experimental Physiology for the Use of Students. By T. G. Brodie, M.D., Lecturer on Physiology, St. Thomas's Hospital Medical School, London. New York and Bombay: Longmans, Green & Co. 1898.

The Psychology of Suggestion, a Research into the Subconscious Nature of Man and Society. By Boris Sidis, M.A., Ph.D., Associate in Psychology at the Pathological Institute of the New York State Hospitals. With an introduction by Prof. William James, of Harvard University. New York: D. Appleton & Co. 1898.

Law of Refraction, Change following Increase or Decrease of Body-Weight. Retinitis Pigmentosa without the Characteristic Pigmentation, a Report of Two Cases. Dr. Traill Green and the American Academy of Medicine. Some Relations of Author, Publisher, Editor and Profession. Child Fetiches. By George M. Gould, A.M., M.D., Philadelphia. Reprints. 1897-98.

Diet in the Chronic Catarrhs of the Gastro-Intestinal Tract. A Plea for the More Frequent Resort to Analysis of the Stomach-Contents for Diagnostic Purposes. Massage of the Abdomen, Important Indications and Contra-indications for Massage of the Abdomen, with Report of Cases showing its Effect upon the Secretion of the Gastric Juice. By Boardman Reed, M.D., Philadelphia, Pa. Reprints. 1898.

Original Articles.

HOSPITALS AND SANATORIA FOR CONSUMPTION ABROAD.¹

BY EDWARD O. OTIS, M.D.,
President of the American Climatological Association.

IN the year 1889, 44,738 deaths from consumption occurred in England and Wales, which probably represents about the yearly average; and it is estimated that from 78,000 to 80,000 persons are constantly suffering from this disease in England. Recognizing the necessity of making some provision for the poor among this number, who form the larger proportion of sufferers from the unfavorable conditions of their environment, especial consumptive hospitals and sanatoria were founded, which now offer accommodations for 4,900 persons. Vast numbers of ambulatory cases are also treated in the out-patient departments of these hospitals in the cities. In 1896, 118,258 patients of this kind attended the four London consumptive hospitals. Besides the Brompton, Victoria Park, North London, and Royal Hospitals for diseases of the chest in London, there is the Royal National Hospital at Ventnor, Isle of Wight; the National Sanatorium at Bournemouth; and others at Manchester, Liverpool, Torquay, St. Leonards, Newcastle, and elsewhere. All are supported by voluntary contributions with more or less of a fixed income from invested funds, the Brompton having the largest. All are practically free, a nominal charge of a few shillings a week being made in a few, with an entrance fee. I am not aware of any paying sanatoria in England corresponding to Göbersdorf or Falkenstein for instance.

LONDON HOSPITALS FOR CHEST DISEASES.

The four hospitals in London are situated in more or less thickly settled portions of the city, although all, except the Royal, on City Road, are in an open space or in close proximity to one, like the North London Hospital near Hampstead Heath. I made especial inquiry as to the attitude of the neighbors regarding the fear of contagion, but in no case did I obtain any evidence that such fear existed, or that the mortality from consumption was greater there than elsewhere.

The Brompton Hospital is the largest, containing 321 beds, and is situated in the southwestern part of the city, near the Kensington Museum. It consists of two large brick buildings on opposite sides of the street, connected by an underground passageway, and a chapel. The original building stands in an open space of three acres, but the new one opposite has but little ground about it. The internal arrangements for ventilation, heating, light, air-spaces, and administration are excellent. The wards contain from two to ten beds each, with bare floors, hard-finished walls, and plain furnishings. Many of them have fireplaces. In the new building 4,000 cubic feet of fresh air per hour are supplied to each patient, and the vitiated air is extracted by means of shafts opening into towers heated by steam coils. The wards open into large galleries or corridors, which serve for recreation and sitting rooms, and with their pictures, flowers and plants present a very attractive appearance. The medical service consists of consulting physicians, physicians,

assistant physicians, resident medical officer and assistants. The visiting staff serve continuously and make one or two visits a week. Clinical instruction is given, and there is a nurses' training-school with a three years' course.

Dr. Habershon, one of the assistant physicians, is the pathologist, and through his courtesy I was enabled to visit the pathological museum of the hospital, containing illustrations of almost every form of tubercular disease of every organ of the body. There is also a laboratory, throat, and inhalation room. The large out-patient department is conducted by the assistant physicians; and here, as at the Victoria Park Hospital, soup, coffee, tea, ginger ale, etc., are served at a nominal price of a penny or two, which seems to me a plan worthy of adoption in some of our large out-patient departments where the poor patients spend hours of weary waiting. Both in- and out-patients must have a letter or recommendation from a so-called governor or subscriber, the number a governor can recommend depending upon the amount of his subscription.

The object and need of such an institution is admirably set forth in an extract from the standing rules:

"This institution," it says, "has been established with a view to supply the deficiency so severely felt by necessitous persons in the want of a hospital for the relief of persons suffering from pulmonary diseases; patients afflicted with consumption not being generally admissible into the wards of other hospitals. Its principal objects are:

"(1) The establishment of a temporary asylum for in-patients afflicted with pulmonary consumption, and a hospital for persons laboring under other severe diseases of the chest.

"(2) To supply other persons, similarly afflicted, with advice and medicine gratis, as out-patients, either at the hospital, or, under certain circumstances, at their habitations, within a limited distance.

"(3) To afford a more extended field of observation and research of medical science than has hitherto existed in this country for this class of diseases."

Brompton, as well as the City of London and Royal Hospitals is under the patronage of Her Most Gracious Majesty the Queen, His Royal Highness the Prince of Wales, and other lesser royal highnesses.

The Royal Hospital for Diseases of the Chest, on City Road, E. C., is situated in one of the most thickly settled portions of London, with no grounds about it and closely hemmed in by buildings. It was the first consumptive hospital established in Europe, having been founded in 1814, by the queen's father. It affords accommodations for 80 patients, and has a large out-patient department. "The interior is very attractive with its pictures, flowers and plants, which, with the arrangement of the wards, does away with the disagreeable hospital look. There are three wards, named the Beatrice, Albert Edward, and Shaftesbury, a recreation room and chapel. As there are no grounds, the street affords the only opportunity for out-of-door life. Emergency beds are kept for the immediate reception of out-patients "who are found to be suffering from acute and dangerous diseases of the chest of recent origin." The in-medical service is by the three senior visiting physicians, a resident medical officer, and one or more house physicians. All of these hospitals have a chaplain. Among the voluminous list of contributors it is curious to note those of "the worshipping the livery companies," such as the Brewers,

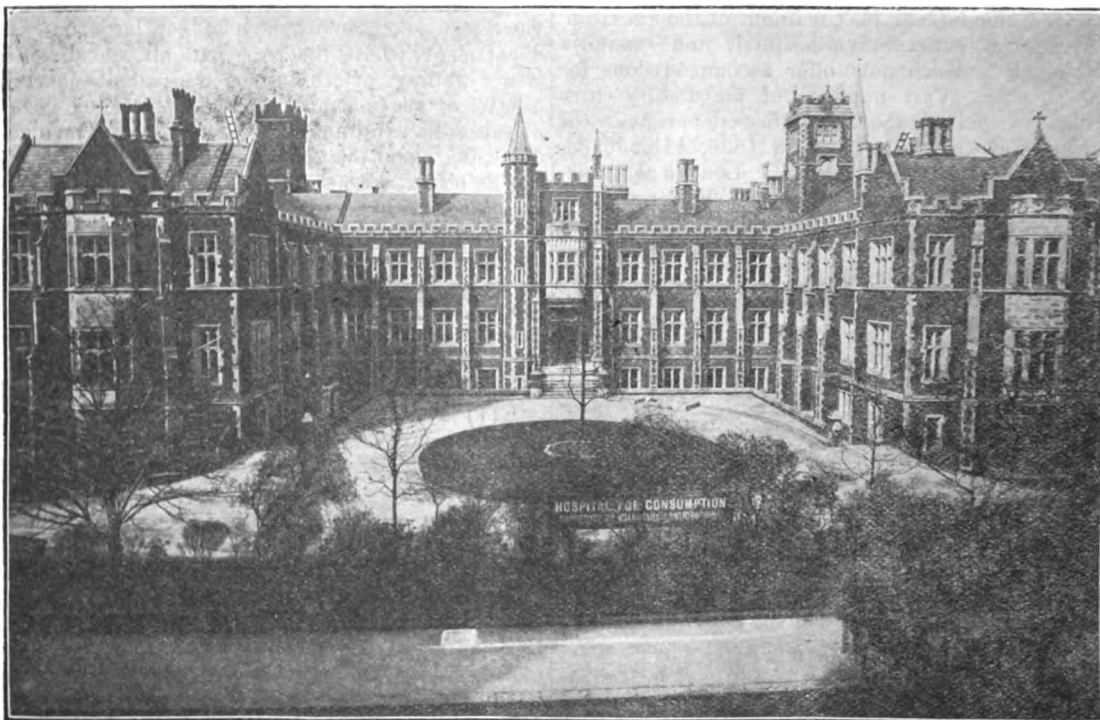
¹ Read before the Boston Society for Medical Improvement, December 13, 1897.

Drapers, Fishmongers, Goldsmiths, and Skinners Companies.

Next in size to Brompton is the City of London Hospital for Diseases of the Chest, Victoria Park, E. It consists of one large brick building with grounds, and is near the great Victoria Park. The wards, severely plain but scrupulously clean, contain from six to twelve beds each, and offer accommodations for 164 patients. There are also halls and sitting-rooms much like those at Brompton. The average attendance of out-patients each week in 1896 was 1,312 or 218 a day. Here as elsewhere the out-patient hours begin between one and two o'clock.

week. Besides the out-patient department at the hospital there is also another in the city at Fitzroy Square.

In all these hospitals the early cases of phthisis are the ones desired, although advanced cases, of necessity, frequently gain admittance through the out-patient department and otherwise. The care of the sputum is measurably well attended to, and there does not seem to be that dread of contagion which exists in some localities in this vicinity (Boston). Each patient has a spit-cup of white earthen ware or galvanized iron, with a five-per-cent. solution of carbolic acid, as a rule. Out of doors he either carries this cup, or uses a special handkerchief or piece of cloth. In the



Brompton Hospital for Consumption, London.

The fourth and last consumptive hospital in London is the North London at Mt. Vernon, Hampstead Heath, which is one of the highest points in the vicinity of London, 430 feet above sea-level. Both the situation and the hospital itself are extremely attractive. As one enters the hall he sees an impressive painting of a mounted knight in armor, leaning over his horse and rendering assistance to a woman in peril, with an inscription to the effect that it is the part of chivalry to aid the weak in obtaining their rights. The wards are of moderate size with a profusion of light and open fireplaces, and on the southern side of the building there are open corridors or piazzas looking upon a pretty garden. There is one large general dining-room, a recreation- and smoking-room, and most comfortable quarters for the resident physician. There is no chapel, but prayers are said in the wards. The proximity to Hampstead Heath offers a fine outdoor promenade for those patients who are able to walk about. The capacity is 80 beds. Patients are received "for a period not exceeding six weeks (except on special medical grounds)." There are a limited number of paying patients at the rate of 10s. 6d. a

grounds at Brompton, however, there are posts at frequent intervals, upon which are spit-cups which the patients are required to use. The sputum is either burned or thrown into the waste water. At Brompton it is collected in glazed iron buckets, mixed with cinders and burned in a special retort, as are also the handkerchiefs used by the patients out of doors. In the out-patient departments, printed instructions are given the patients as to the dangers from the sputum and their prevention; and I subjoin those of Brompton, which seem to me admirable on account of their simplicity and clearness:

HOSPITAL FOR CONSUMPTION AND DISEASES OF THE CHEST, BROMPTON.

DIRECTIONS TO OUT-PATIENTS.

1. Never spit about the streets or on the floor or in the fire-place, or into any vessel unless it contains a disinfectant.
2. When indoors always use a cup or jar or hand spittoon containing a tablespoonful of strong solution of washing-soda or other disinfectant. Empty it daily down the water-closet; never empty it upon the dust-heap.
3. When empty wash it thoroughly with boiling water and add a tablespoonful of the disinfectant.
4. Handkerchiefs used by consumptive patients should be fre-

quently changed, at least once daily, and should be scalded before being washed.

5. Do not swallow the expectoration, as by so doing other organs of the body may become affected.

6. Keep your room well aired and cleaned.

7. A consumptive patient should, if possible, occupy a separate bed.

8. Any room which has been occupied by a consumptive patient should be thoroughly cleansed before again being used.

9. Milk may be a source of danger and should be boiled before use.

BY ORDER OF THE COMMITTEE.

The treatment was mainly hygienic-dietetic: good care, excellent food, well-ventilated wards and rooms, and more or less outdoor air and exercise. There was but comparatively little medication. Creosote seemed to be generally used, but usually in small quantities and with but little faith in it as possessing any specific virtue. At one of the hospitals, however, I was told that it was used in forty-minim doses, two drachms a day. Inhalations of creosote vapor were made use of for gangrenous conditions of the lungs. Oxide of zinc and belladonna were quite universally used as an anti-hydrotic. Pyrexia was not treated except as it became an annoying symptom. In none of the hospitals was ergot used for hemoptysis, or indeed any drug save morphia. Of the results, the majority are discharged more or less improved, which is about all one could expect under the unfavorable conditions of consumptive hospitals situated in a great city; the time a patient can be retained is necessarily short from the pressure to gain admittance, and the open-air treatment so insisted upon in the Continental sanatoria is either impossible or possible only to a limited degree, owing to the lack of open space. Moreover, the city air is impure, laden with dust and germs. Nevertheless, these hospitals are of infinite worth to the working people, to whom they offer treatment and care in their misfortune, and who would otherwise be left to suffer and die in crowded tenements, with the constant risk of infecting those about them. There are, however, various places on the south coast at Bournemouth, Sandgate, Eastbourne, Folkestone, etc., called "Convalescent Homes," where patients leaving these hospitals "improved" can make still further progress towards recovery in the pure air of these places.

ROYAL NATIONAL HOSPITAL FOR CONSUMPTION AND DISEASES OF THE CHEST, VENTNOR.

At Ventnor, on the southeastern coast of the Isle of Wight, is situated the Royal National Hospital for Consumption and Diseases of the Chest. The salubrity of the climate of the south coast of England, especially in the winter, and its beneficial effects in pulmonary diseases is well known, and Ventnor is one of the many health stations on this coast. The hospital stands in a sheltered spot of the "Undercliff," looking towards the south and the ocean, in the midst of extensive grounds attractively laid out, and exhibiting the beautiful and varied vegetation for which the island is noted. The situation, with the combination of land and sea, is indeed enchanting. The buildings consist of ten blocks or cottages, with a chapel, affording accommodation for 184 patients. Each block has from ten to eighteen sleeping-rooms, and a sitting-room for every four or six patients; 5,000 cubic feet of fresh air are supplied every hour and an equal amount of foul air extracted. The blocks are connected by a subway, and there is one general kitchen, and a large hall for entertainments and amusements. On the

southern exposure extends a veranda surrounded by a balcony which can be reached from the bedrooms.

Only incipient cases or those arrested in the later stages are received, and a nominal charge of ten shillings a week is made, "in order," as the report says, "to give the patients a feeling of independence." The length of residence depends upon the necessity of the case and the discretion of the physician, but if a patient remains longer than ten weeks a fresh letter of recommendation must be procured.

As to the results obtained, the report for 1890 gives, of those discharged during the year, 12 per cent. very much improved, 18.8 per cent. much improved, and 44



The Royal National Hospital for Consumption, Ventnor.

per cent. improved. When one is reminded that 631 were admitted during the year and 639 discharged, he will see that the short term of residence militates against more favorable and permanent results. Moreover, the excellent opportunities for the *Freiluft Kur*, such an essential factor in the management of the disease with the Germans, did not seem to me to be taken advantage of as they might, and I do not remember seeing any very large number of patients lying out in reclining chairs, such a general and common feature in the Continental sanatoria.

NATIONAL SANATORIUM, BOURNEMOUTH.

Of the three south-shore winter resorts I visited, Torquay, Ventnor and Bournemouth, the latter, besides possessing equally favorable conditions in other respects, has the advantage of being situated in the pines which are thickly scattered about, both in and around the town. In this respect as well as for its warm climate it strongly resembles the French resort, Arcachon, on the coast opposite. The pines resemble in appearance those seen at the south, and they are, next to the cliffs, the striking feature of the place. The favorite and most frequented resort for those suffering from pulmonary troubles is the "Invalid's Walk," which winds among the pines in the attractive park near the ocean. The sanitary and hygienic conditions appeared to be most excellent.

About half a mile back from the ocean, overlooking one of the pleasant gardens, is situated the National Sanatorium, a long two-story building of stone. It has been in existence over forty years, and, as at

Ventnor, is for the "necessitous poor"; from most of the patients, however, a weekly payment of seven shillings and sixpence is required. It can accommodate 62 persons. The wards are small, containing about five beds. Almost adjoining is the large and elegant Mont Dore Hotel and bath-house, but I could not learn that the inmates entertained any fear of contagion from their consumptive neighbors.

Some of the "rules to be observed by the patients" might strike one as somewhat peculiar, for instance: "Patients shall attend daily morning and evening prayers; also divine service on Sunday, morning and evening." "Male and female patients may not take exercise together, or communicate with each other." And another, which seems assuredly questionable, when one considers that consumption is a disease which requires so much individualization, and in certain states, as fever, rest rather than exercise: "Patients are required to be able to walk out daily, are to make their own beds, to keep their wards in order, to make themselves generally useful, and are not to remain in their bedrooms during the day-time."

The treatment is mainly fresh air and good food, with symptomatic medication. I give a specimen of a day's dietary:

BREAKFAST.—Fried bacon, boiled eggs, cold meat, tea, coffee.
DINNER.—Top side of beef, loin of mutton, suet pudding, baked rice pudding.
TEA.—Bread and butter, tea, jam.
SUPPER.—Hot and cold milk, soup, porridge.

In 1895, 218 patients were treated, of which 103 or 47 per cent. were "very much improved and able to return to their work."

The Firs Home, for cases of advanced consumption, is also situated in Bournemouth, and is a most attractive and comfortable "home" for 20 patients. A picturesque stone building near the centre of the city, with vines and flowers, it gives no suggestion of the pathetic scenes happening within.

PARIS.

In Paris there are no hospitals exclusively for consumption, but those suffering from this disease are received into the general hospitals and segregated as much as possible in separate wards; this I found to be the case in the great Hospital de la Pitié and Lariboisière.

ORMESSON.

At Ormesson, eight or ten miles out of Paris, is a new sanatorium for tuberculous children, situated upon a plateau overlooking the valley of the Marne, and on one of the highest points in the environs of Paris. It is composed of single-story pavilions which were used in the Exposition of 1889. The whole arrangement is most simple: two large wards containing 100 beds in all, with a kind of cemented floor, glistening white walls, large windows letting in a flood of light; long rows of little beds along the sides, exquisite neatness; the whole presenting a most striking and attractive appearance. I saw but one child in bed, the rest looking brown and ruddy, were out of doors in the yard, evidently receiving some sort of instruction from a teacher. The treatment is purely hygienic. The support is by voluntary contributions from the members of a society known as "D'Œuvre des Enfants Tuberculeux," who also have established another hospital of the same nature at Villiers-sur-Marne, about

three-quarters of an hour distant from Ormesson, and which contains 80 beds. The Sisters of Charity have the care of both these hospitals.

(To be continued.)

OBSERVATIONS ON MENINGITIS IN INFANTS AND CHILDREN.¹

BY A. H. WENTWORTH, M.D.,

Assistant in Diseases of Children and in Pathology in the Harvard Medical School.

(Continued from No. 11, p. 244.)

CHRONIC cases last from eight to ten weeks, or even longer. This form has the usual acute onset followed by severe symptoms lasting for several days. Then the temperature falls gradually and remains either normal, subnormal, or slightly elevated for weeks. The symptoms of retraction, tenderness in the neck and spine, hyperesthesia and more or less mental disturbance persist most of the time although these symptoms vary very much in intensity from day to day. The emaciation becomes extreme and the patient grows weaker and weaker. The pulse is often considerably increased in rate. Complications in the heart, lungs and other organs are exceedingly rare with the exception of the eyes and ears. Optic neuritis is not uncommon, and deafness not infrequently occurs. Paralyzes, aside from the ocular muscles, are uncommon. When death occurs it is, as a rule, unexpected and takes place quietly. In some cases paralysis of respiration occurs without any terminal rise in temperature, or symptoms of infection. The clinical picture of these cases suggests nerve degeneration as a cause of death. The cases which recover are often permanently blind and deaf and mentally impaired.

CASE IV. Female, seven years old. Entered the hospital February 11th with a history of three weeks' illness. The disease began suddenly with violent headache, vomiting and fever. The vomiting continued for three days, during which time she vomited several times each day. The head became retracted very soon, and there was episthotonos and general hyperesthesia. The patient complained of pain in the ears. There was no loss of consciousness; but it is presumable that stupor occurred. Deafness was said to have occurred four days after the onset of the disease.

A physical examination made on February 11th is as follows: "The patient is emaciated. There is considerable stupor from which the patient rouses when disturbed. The head is held retracted and drawn to the right side. There is considerable hyperesthesia over the spine. Pressure over the right mastoid causes pain. There is almost complete deafness. A few râles are heard in the lungs. The heart is negative. The liver and spleen are not enlarged. The abdomen is somewhat retracted. There is no albumin in the urine. An examination of the ears shows an acute inflammation of the right middle ear and a more chronic process in the left ear." The condition remained about the same for several days. The retraction of the head and hyperesthesia gradually subsided and by the 19th of February these symptoms had disappeared. The patient at this time was practically unconscious. She lay motionless in bed, at times crying out. It was difficult to make her take food.

Lumbar puncture, performed on February 23d, showed a turbid fluid, which contained pus corpuscles and fibrin. Diplococci were present in some of the cells. No culture of the organism was obtained.

Until March 5th the condition remained about the

¹ From the Sears Pathological Laboratory of the Harvard Medical School.

same except that the mental disturbance was not so marked. The patient remained motionless for hours, the face wearing a stupid and vacant expression. The pupils were widely dilated and reacted imperfectly to light. There was some convergent strabismus. The temperature was practically normal.

From March 5th to March 19th the child grew gradually weaker. There was always more or less stupor. The pulse was rapid and feeble. Food was administered with difficulty.

From March 19th to April 5th there was slight improvement. Food was taken better and she seemed a little stronger. There was practically total deafness. From this time until her discharge from the hospital the temperature remained between 98° and 99° F. The pulse varied between 100 and 120. The respirations were normal.

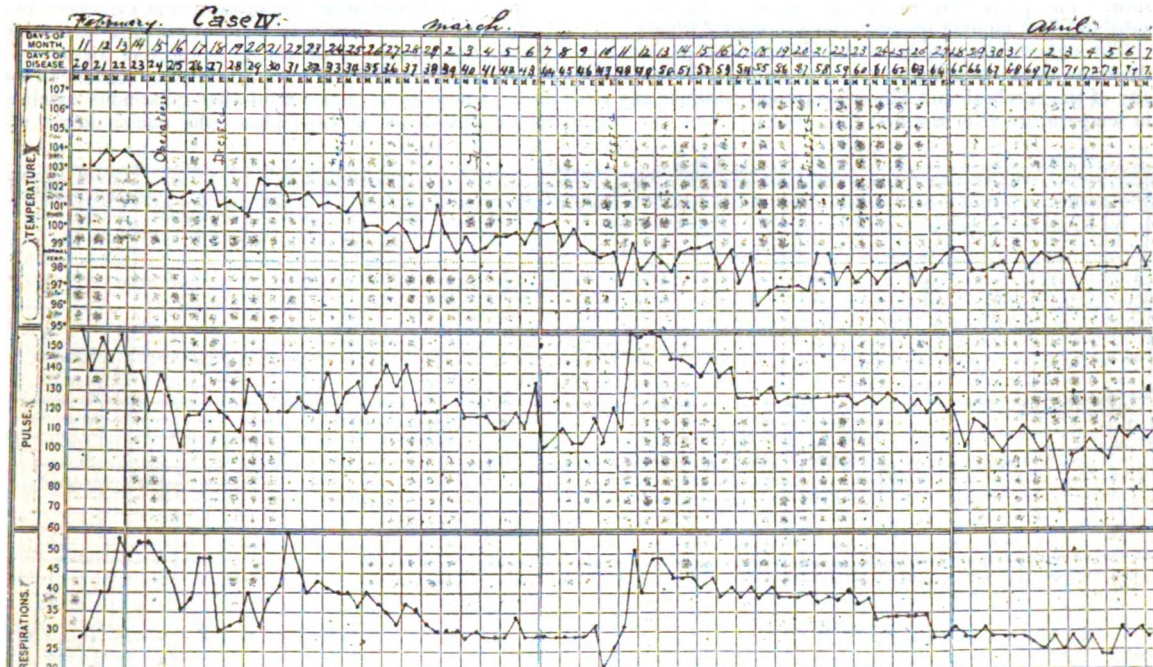
A recorded examination on April 5th shows thus:

She was able to stand alone by the first week in June. Examination of the eyes showed improvement in the fundi. The loss of hearing was complete. By June 20th she was able to walk unaided, and was discharged well.

It was several weeks after she began to gain and to have so good an appetite before there was a noticeable diminution in the emaciation. Dr. Jack reports that an examination of the eyes made some time after leaving the hospital showed constant improvement. She was able to recognize people's faces.

A second and third lumbar puncture, made at intervals of about two weeks after the first one, showed a diminution in the turbidity of the fluid and in the number of cells and quantity of fibrin.

CASE V. Male, three and one-half years. Entered the hospital on April 5th. The child was said to have had a mild attack of measles four weeks previous to the present illness from which he recovered within a week.



"The patient is excessively emaciated. There is no retraction of the head. There is some hyperesthesia. The abdomen is retracted. The heart-sounds are clear. The liver and spleen are not enlarged. The lungs are negative. There is considerable stupor but the patient can be easily roused. The examination of the eyes shows double optic atrophy. There is no paralysis. The strabismus has disappeared. The patient is apparently able to detect light."

In the middle of April the patient's general condition was worse than at any time. On several occasions it seemed impossible that she could live longer than a few hours. During these days the pulse was very feeble. The respiration was superficial and slow at times. The extremities were cold and dusky in color. Food and stimulants were administered with great difficulty. On some days she appeared a little stronger. This condition lasted with varying intensity for about a week. Then she began to take food better and became cognizant of her surroundings to some extent.

From May 2d she gained progressively but slowly. Her appetite became ravenous, so that she cried for food. By the middle of May she sat up in bed with a support. She became quite irritable. By the end of May the pupils reacted slightly to light and she could distinguish the contours of people near her. By this time she sat up in a chair. There was no paralysis.

The present illness began suddenly with fever and vomiting. On the following day the head became retracted, and there was considerable hyperesthesia.

A physical examination made at the time of entrance, on the fifth day of the disease, is as follows: "The patient is under-developed and somewhat emaciated. He lies on his side with the head very much retracted and held rigidly. There is considerable apathy. The eyes are widely open, and the pupils are dilated and react imperfectly to light. A slight degree of convergent strabismus is present. There is marked general hyperesthesia. The throat is negative. There is no efflorescence on the skin. There is a purulent discharge from both ears, presumably of long standing. The heart-sounds are not abnormal. The lungs are negative with the exception of a few moist rales here and there. The abdomen is retracted and the muscles are tense. The spleen and liver are not enlarged." The urine was not obtained.

Three days later the patient became unconscious. He still lay upon his side with the head retracted. He was not sensitive to touch. The pupils were dilated.

Lumbar puncture was performed on the eighth day of the disease. A very turbid fluid was obtained, which contained numerous pus corpuscles and much fibrin, many of the cells contained diplococci. Cultures from the fluid in serum showed a profuse growth of the diplococcus intracellularis. The patient was unconscious only for a day

or two but he remained very stupid and only roused when disturbed.

From the twelfth to the thirtieth day of the disease the patient's condition varied from time to time. Often for two or three days there was marked retraction of the head and hyperesthesia. These periods were followed by short intervals, during which the symptoms were less severe. During the entire illness the child was never entirely free from these symptoms. The mental condition varied in the same way from apathy to stupor. He was fed with great difficulty, part of the time by means of a nasal tube. The emaciation became very marked.

In the fifth week of his illness there was a little improvement. He took food better and appeared to be a little stronger. This period of slight improvement lasted about three weeks and then he grew weaker. At times his heart was quite feeble but responded to stimulants. Toward the last he refused food. The respiration was slow. The pulse was rapid and weak. The retraction subsided, and he died quietly after ten weeks' illness.

Throughout the course of the disease the patient continued to have exacerbations and remissions in the intensity of the cerebral and spinal symptoms, without any rise in temperature after the first four weeks.

pericardium, liver and spleen are not abnormal macroscopically. The bronchial glands are slightly enlarged and grayish-red in color. The mesenteric glands are moderately enlarged and rather opaque and gray in color. On section a few small areas of caseation are found in some of them. The intestines and peritoneum are not abnormal macroscopically. The bladder is thin walled and distended up to the umbilicus with cloudy urine. The autopsy was performed twenty-two hours after death and cultures were not made from the organs.

Microscopic Examination. Portions from various parts of the brain, cord, lungs, liver, spleen and kidney were hardened in Zenker's fluid; mounted in paraffin and stained with Unna's polychrome methylene-blue. The changes are chiefly confined to the pia-arachnoid. In the brain and cord there are no noteworthy changes in the sections examined. (No examination of the peripheral nerves was made by the writer.) Sections made from the portions of the brain and cord in which macroscopic evidences of inflammation existed show marked thickening of the meninges due to the formation of young connective tissue. The pus corpuscles and fibrin have disappeared except in some places where there was a somewhat gelatinous exudation macroscopically. In these places the nuclei do not stain



Autopsy (Dr. Wentworth). Body of a very much emaciated male child.

Head.—Opening of the dura is followed by the escape of a considerable quantity of fluid. The convolutions are much flattened. In the fissure of Sylvius, along the middle and lower part of its course, is a small quantity of yellow, opaque exudation. The exudation is firmly fixed in the meshes of the pia. The quantity is approximately the same on both sides of the brain. At the base of the brain the quantity is much more excessive, covering in the optic commissure to some extent and extending over the crura, pons, cerebellum and medulla. The exudation is partly organized and binds the neighboring parts firmly together by means of bridges of exudation which extend between the pons, cerebellum and medulla. There is considerable exudation of the same character on the superior surface of the cerebellum. The lateral and third ventricles are considerably distended with fluid.

Cord.—The dura and pia are quite firmly united by partly organized adhesions over the cervical portion of the cord. The pia is somewhat opaque over the whole cord, especially posteriorly.

Thorax.—The left lung is adherent to the chest wall over the lower lobe. The adhesions are not very dense and can be readily broken up. In both lungs, in the dependent portions, there are areas of atelectasis. The greater portion of both lungs is well aerated. The heart,

and there is more or less granular detritus. In most places the connective-tissue fibres are well formed, the connective-tissue corpuscles are very numerous but are narrow and elongated. In places the mesh-work of connective-tissue fibres is quite dense, in other places it is loose. In the spaces between the fibres are numerous plasma and lymphoid cells. Most of the lymphoid cells are collected in masses in the vicinity of the larger blood-vessels. The large cells which are so numerous in the acute cases have disappeared. Many of the newly-formed blood-vessels have well-marked walls and the endothelial nuclei are becoming much less prominent. In many places it would seem as if some of the newly-formed vessels had disappeared because they are so few in number as compared with other parts of the pia. The changes in the meninges of the cord are mostly on the posterior surface and are of the same character as in the meninges of the brain, but they are not so extensive.

Mild cases begin with the same sudden onset as the other varieties, followed by more or less pain, retraction, stupor, etc. The symptoms subside after two or three days and the patients recover. During the first day or two it may be impossible to determine that the disease is going to pursue a mild course.

CASE VI. Male, four years of age. Entered the hospital January 8th. There was no history of a previous illness. The present illness began with headache eleven days before the patient's entrance into the hospital. There was no vomiting. The temperature was not taken. In the afternoon of the same day the child complained of pain in the left arm. At 4 o'clock in the afternoon he was said to have become unconscious and to have remained so until he came to the hospital. This was probably an error in observation because the parents stated that three days later the head was somewhat retracted and he cried when handled, which would not have been the case had he been unconscious. It is probable that there was more or less stupor. The retraction lasted for two or three days, and there was some tremor of the hands at this time. There was no recurrence of acute symptoms after the first four or five days.

A physical examination made January 8th is as follows: "The child is fairly well developed and nourished. The cheeks are flushed. The speech is thick and difficult to understand, but the mental condition is not impaired. There is no retraction of the head, or hyperesthesia. The pupils are equal and react to light. There is no paralysis. The heart and lungs are not abnormal. The abdomen is not retracted. There are evidences of rachitis in the ribs, epiphyses and shape of the head. There is no albumin in the urine. The temperature is normal."

Lumbar puncture was performed on January 11th and a very slightly cloudy fluid was withdrawn. The fluid contained very few leucocytes and very little fibrin. No organisms were found. Cultures on blood serum remained sterile. The patient was in good condition. The speech was still thick. He sat up in bed much of the time.

On January 16th the speech was much clearer. His appetite was good. On the 20th he walked about the ward and appeared perfectly well. His speech was normal for a child of that age. During his stay in the hospital the temperature remained between 98° and 99° F. The pulse varied from 100 to 120. The respirations for the first four days were slightly increased in frequency and afterwards were normal.

Diagnosis.—The diagnosis of epidemic cerebro-spinal meningitis is based upon certain symptoms which are common to all the types of the disease with the exception of certain comparatively rare fondroyant cases. These cases prove fatal in a few hours and the symptoms may resemble those of septicemia or toxemia more than those of meningitis. The diagnostic symptoms are a sudden and often severe onset characterized by headache, vomiting and fever; soon followed by pain and tenderness in the neck and spine; usually more or less retraction and rigidity of the head; general hyperesthesia; mental disturbance varying from apathy to unconsciousness; the occurrence in many cases of an herpetic efflorescence about the mouth or face; a moderate and irregular type of temperature in striking contrast to the severity of the other symptoms. A positive diagnosis can be made by means of lumbar puncture.

Lumbar Puncture.—The fluid obtained is more or less turbid. In severe acute cases, a puriform deposit frequently settles to the bottom of the test-tube in a short time. Microscopic examination of cover-glass preparations made from the sediment shows numerous polymorphonuclear leucocytes, "pus corpuscles," occasional smaller mononuclear lymphoid cells and fibrin. Groups of the diplococcus intracellularis are found in varying numbers in the protoplasm of some of the leucocytes. The cover-glass preparations should be stained with some preparation of methylene-blue, preferably Löffler's, which stains both the nuclei and the organisms. To differentiate the diplococcus intra-

cellularis from other organisms a second cover-glass preparation should be stained by Gram's method. (By this method the intracellular diplococcus becomes decolorized.)

Cultures should be made on blood serum at the time of puncture by allowing one or more cubic centimetres of the spinal fluid to drop into the culture-tube. Care must be taken to prevent the fluid from running down the side of the test-tube at its upper part in order to avoid contamination by wetting the portion of the tube which comes in contact with the cotton. One may fail to obtain a growth of the organism if the puncture is not performed during a period of the disease in which active symptoms are present. After obtaining the fluid in the serum-tube allow it to flow over the surface of the serum and remain in contact with it for a minute or two. In a number of cases in which the organisms were present in the cells and in which active symptoms were also present the writer has failed to obtain cultures by the use of a small platinum loop filled with fluid, because the quantity of fluid was too small.

The macroscopic appearances of the fluid are not to be relied upon in all cases. A very slight admixture of blood will render the fluid turbid; and if sufficient blood is present, a web of fibrin forms in the fluid after standing. Hence it is necessary to make a microscopic examination in all cases. If blood, or bloody fluid appears at the end of the needle it is well to allow the fluid to escape until a clear drop appears. It is rarely necessary to allow more than a cubic centimetre to escape in this way.

Inoculation experiments are, as a rule, unsuccessful. The organism is not pathogenic for guinea-pigs and rabbits. Goats are susceptible to it.

(To be continued.)

INCREASE OF INTRADURAL PRESSURE IN HEAD INJURIES.¹

BY W. N. BULLARD, M.D.

SEVERAL years ago I drew attention to the fact that an apparent increase of the intracranial pressure occurred in severe injuries of the head, and that the existence of this pressure and of the symptoms to which it gave rise were among the important factors in the determination of the condition in a given case and of the advisability of operation.

Indeed, the determination of the advisability of operation in cases of head injury in which no external signs exist depends very largely on the apparent degree of the intracranial pressure. Further observation and investigation of these cases has only served to confirm the views previously expressed.

I hope to-day to enter more into detail in regard to this condition. The first questions which confront us are, Does this apparent increase in intracranial pressure actually exist? and, if so, where is it situated and what is its cause?

That it does exist is, I believe, fully proved by clinical observation. Certain it is that in most cases of operation (trephining or in any way opening the cranium) that we find a marked tension of the dura, with pulsation of the brain absent or much diminished, and that on cutting or opening the dura this tension is

¹ Read before the Boston Society for Medical Improvement, December 13, 1897.

diminished while the pulsation is proportionally increased.

Such increase of tension existed in many cases which I have personally observed, and may be considered the usual condition found on trephining for head injury.

Formerly increase of intradural pressure after injury to the head was supposed to be due to pressure from a blood-clot. In some cases this is practically the case—the blood-clot, most frequently from the middle meningeal artery, is removed and the cerebral pressure ceases; but there are numerous cases in which the intracranial pressure occurs in connection with head injury in which no blood-clot exists. I wish specially to emphasize this point, as I have seen cases in which the surgeon trephined the cranium on both sides to find the blood-clot, which could not be found and, in my opinion, did not exist. It is not my province to enter into the methods of distinguishing between intracranial pressure due to blood-clot and that form due to other causes. In certain cases they probably cannot be distinguished; but in many cases hemorrhage can be diagnosed. Intracranial pressure accompanying head injury does not, however, necessarily imply hemorrhage or blood-clot. It often exists without blood-clot.

Can now the intracranial pressure which we see on trephining after a head injury be due to any other cause than the injury?

This question has long seemed to me important. We know but little by direct observation of the intradural pressure in the adult under normal conditions. In infants before the closure of the anterior fontanelle we are often able to form some idea of the condition, but in many cases the thickened dura prevents any accurate knowledge of the degree of pressure beneath. We have, however, definite clinical evidence, or what is generally supposed to be such, of increase of intracranial pressure after head injuries.

Moreover, the amount of intracranial pressure which we directly observe after trephining is greater than we should expect to occur without the production of symptoms.

Is it possible, however, that any temporary or accidental causes may be the active factor in these cases rather than the injury? I have long felt that the influence of ether could not be eliminated; and it was not until I obtained definite, direct observations that I was able to be certain that it did not play an important part.

Last September a male adult was brought into the City Hospital unconscious, with hemorrhage from the right ear and a scalp wound nearly vertical in direction, three and a half inches long above the right mastoid. At the bottom of this wound the bone was exposed, but no fracture was detected. There was an ecchymosis around the right eye.

When seen by me, five hours after admission, he was deeply unconscious. The left pupil was larger than the right. All the limbs were in a condition of total flaccidity, but there was no facial paresis. Knee-jerks slightly increased. There was thought to have been a gradual increase of swelling about the right eye and some protrusion of the eyeball.

Operation was advised, and was performed at once without ether. The incision was lengthened downwards and a fissure was found running antero-posteriorly. On following this forward about an inch, a comminuted fracture with loose pieces of bone ap-

peared. The opening made by the removal of these loose pieces was enlarged by the rongeur. The brain beneath was bright red, not covered by dura, protruded through the opening, and did not pulsate except on pressure. No large clot of blood anywhere.

The patient died later, and the autopsy showed (1) a blood-clot of considerable size over the external surface of the left hemisphere posterior to the frontal lobe and thickest in lower posterior parietal region, (2) destruction of brain substance at site of bone removed (right lower parietal region), (3) that the longitudinal fissure found extended backwards across the right occipital bone passing directly through the torcular Herophili into the left occipital, and anteriorly it ran into the right middle fossa and thence apparently across the sella turcica, and a crack appeared in the left middle fossa. There was an effusion of blood in the right orbit, though no visible crack in the anterior fossa or orbital plate was detected on examination.

In this case, although no ether was given, there was marked tension of the brain, as evidenced by its protrusion through the opening in the cranium. I do not think that this was in any way dependent on the clot over the other hemisphere. On the other hand, such condition is apt to exist in certain cases of contusion. In this case there was some question of alcohol. While it is hardly likely that alcohol played any essential part in the increased brain pressure its influence cannot be wholly excluded.

In the following case the effect of alcohol is excluded. A boy, nine years old, was brought unconscious into the Boston City Hospital with tonic spasm of the left upper extremity. He had an immense antero-posterior extravasation over the whole length of the sagittal suture, and ecchymosis of the right eyelids. There was dilatation of the right pupil; knee-jerks slight. Lower extremities negative.

Operation was performed at once without ether. The sagittal suture was separated throughout its whole length and the longitudinal sinus laid open. There was a transverse fracture of the right frontal bone and a piece of loose bone there was removed. The surgeon trephined over about the middle of the right ascending frontal convolution. The dura was blue and very tense. On opening it the brain protruded perhaps as much as two inches. The protruding portion of the brain was contused and disintegrated. There were no large clots beneath the dura. Bubbles of air came through the trephine hole, suggesting fracture of the ethmoid.

In both these cases in which no ether was used there was contusion and disintegration of the brain substance; and in such cases we are apt to have—as in the last described—a marked brain pressure and protrusion when the opportunity exists.

It seems, however, fair to assume that the ether is not the cause of the increase of intradural pressure in the ordinary case of head injury, as it certainly was not in these two cases. Alcohol as a cause can also be excluded in a considerable number of cases. We are therefore compelled to assume that the increase in intradural pressure is due to the injury directly, as the clinical symptoms imply.

The pathological condition which exists in these cases is apparently a swelling of the brain itself, due in part perhaps to a filling and dilatation of its blood-vessels, in part to an edema of the cerebral tissue resulting therefrom, and in part also in some cases to an

excess of fluid between the pia and the dura. This latter, which has been referred to by Dr. Walton in his interesting paper read before the American Neurological Association at its last meeting, occurs in certain cases but not in all those in which intradural pressure exists.

The following cases illustrate this form of intradural pressure.

Male, thirty years old, was struck a glancing blow on the head one morning with a hammer. This occurred seventy miles from Boston. He came to Boston by train, ate a good dinner and a moderate supper, and after supper came to the hospital as an out-patient. Was seen about 9.30 P. M. There was a depression about three inches across, just to the left of the sagittal suture and immediately posterior to the coronal suture. No symptoms.

Operation immediate. Depression found in region described, with several radiating fissures. Trephined, and depressed fragments raised. Longitudinal sinus not injured. Dura did not pulsate. On puncture of dura considerable clear fluid escaped. Recovered without symptoms.

Male, eleven years old, was injured by an electric car. A large portion of the left scalp was torn back, and two fissures were plainly visible in the cranium, one running vertically through the left parietal bone just posterior to the vertical plane which passes through the anterior edge of the pinna; the other running horizontally forwards about two inches above the base of the cranium. The bone posterior to the vertical fissure was depressed, and ran under the edge of the anterior fragment. The bone above the horizontal fissure was slightly depressed. Blood oozed through both fissures; there was no hemorrhage from the ear. Patient was unconscious. No paralysis. No pressure symptoms. No decided difference in size of pupils.

Operation under ether. Trephined just posterior to vertical fissure. No clot. Dura bluish, tense, does not pulsate. On incision of dura, no clot; considerable cerebro-spinal fluid escaped.

I wish in passing to draw attention to the fact that there were no clinical symptoms of intradural pressure in this case in spite of the increase in the subdural or arachnoid fluid.

I am personally convinced, however, that the excess of subdural fluid is not alone the cause of the pressure symptoms in cases of head injuries.

(1) The increase in the amount of this fluid is, in many cases, not very great or even not apparent.

(2) It is shown by the tension and protrusion of the brain after the dura has been cut that the intradural pressure, as it still exists, was not in large part due to the fluid which has escaped.

(3) I have seen cases in which the pressure of the subdural fluid was very much greater than any shown in the ordinary cases of head injury with pressure symptoms—so great that when the dura was cut the fluid spurted, and, yet, there were clinically no general pressure symptoms. The following cases illustrate these points:

A female, age fifty-two, fell from an electric car. Was admitted to the hospital shortly after. Conscious; pupils equal; no paralysis anywhere. There was a depression of the cranium in the right temporal region. The surgeon trephined in this region, the operation being done under ether. No extradural clot. The dura was tense and scarcely pulsated. On cutting the

dura the brain bulged. No excess of cerebro-spinal fluid noted. Recovered well and quickly.

This is the ordinary condition, in my experience, in those cases of intradural pressure due to head injury in which no clot exists and there is no serious brain injury.

A male, eleven years old, fell down the subway and received a fracture of the frontal bone, with depression of a portion thereof. Was operated upon under ether on the fourth day after the accident. He then had an acute pachymeningitis. The dura was incised; no excess of subdural fluid noted, no subdural clot.

If, then, the cause of the increase of intradural pressure in head injuries in which no clot exists is not due wholly, or even in large part, to the excess of subdural fluid, to what may we consider it due? There is no doubt that it is, at least in part, the result of the congestion of the intracranial blood-vessels, either directly or indirectly. This is apparent, not only from direct observation and also from the fact that in no other way can we account for the rapid changes of the intradural pressure which are so often observed, but also from those cases (and they are not rare) in which after head injury intradural pressure does not occur. These are an extremely interesting class of cases, and I hope at some future time to be able to consider them in detail. I will only say here that I feel certain that in these cases the absence of increase of intradural pressure is (with rare exceptions to be noted later) due to hemorrhage, whether with or without clot formation. The relief of the congestion of the intracranial vessels causes the bulging brain to sink and the pulsation to reappear.

The opposite is the case when, as I have seen, on tying an intracranial artery or stopping a hemorrhage, the brain which has been sunken and pulsating feebly, at once or shortly begins to swell and the pulsations to become more strong.

Cases might easily be reported illustrating these points, but at the present moment this seems hardly advisable.

SUMMARY.

(1) An abnormal increase in the intradural pressure often occurs as an accompaniment or result of severe head injuries, where no large clot exists.

(2) This intradural pressure may be in part due to an excess in the amount of subdural fluid. This, however, is, as a rule, not the chief element in the intradural pressure which is principally due to the bulging of the brain itself.

(3) The cause of this intradural pressure is apparently a congestion or filling of the intracranial blood-vessels and the results thereof.

A WARNING TO OBSTETRICIANS. — Don't count your chickens before they are hatched. How Dr. Brickett lost his fee and ten dollars besides. When he was living in China, before the war, he was called to attend a case of confinement in Palermo. After being at the bedside a few moments a child was born. It looked rather small and the doctor remarked, "Mrs. Blank, if you have another one I won't charge any fee." In about twenty minutes another child was born (No. 2). Then the doctor said, "Mrs. Blank, if you have another I will make you a present of ten dollars." In less than half an hour another child was born (No. 3).

A DIFFERENTIAL DIAGNOSIS OF EMPYEMA OF THE ACCESSORY CAVITIES OF THE NOSE BY INTERNAL EXAMINATION.

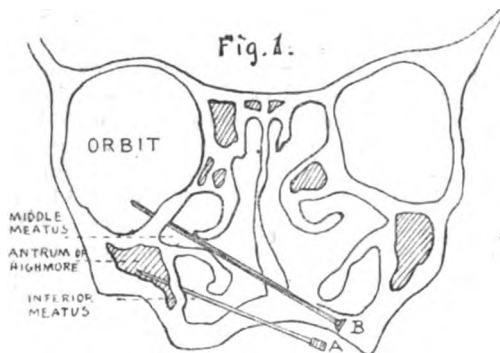
BY ROCKWELL A. COFFIN, M.D.,

Assistant to the Physicians in the Throat Department of the Boston City Hospital.

It is not the intention of this paper to introduce many new methods of examining any one cavity, but rather to combine certain methods used in some clinics of Europe in a way to enable one familiar with the anatomy of the nose and its surrounding parts to make a positive diagnosis regarding the involvement of one or all cavities in empyema.

In order to simplify this method as much as possible, we will take, as example, a patient presenting himself with a discharge of pus from one side of the nose.

It is important to examine the nose to make sure there is no foreign body present, and this may be done by use of the speculum and probe.



Section through the nose, showing needle (B) entering orbital cavity through middle meatus when the lateral wall slopes outward. A, shows needle entering the antrum through inferior meatus. Outline: Zuckerkandl, Anatomie der Nasenhöhle.

When we look into the nose we find the nasal cavity more or less covered with pus of a whitish or yellowish appearance. After syringing or wiping away all the pus we wait about ten minutes to see if pus again makes its appearance; and if no pus appears, a five-per-cent. solution of cocaine is now applied to the middle turbinate and middle meatus in order to make the nose more spacious and produce anesthesia.

If the patient, while in the sitting position, allows the head to rest on a table or stool about twenty inches high, with the affected side of the head uppermost, the pus may flow out of the natural opening of the antrum and sometimes from the anterior ethmoidal cells, but not from the frontal cavity.

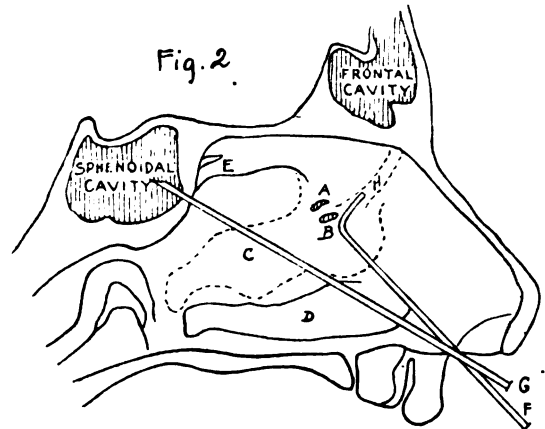
Now, with pus under the middle turbinate body, we consider first the antrum. The parts must always be kept shrunken with cocaine. Having cleaned the nasal cavity of pus, we now try to introduce a small silver canula through the normal opening of the antrum. It is well to remember, in case we cannot enter through the normal opening, that it is sometimes very easy, as Hajek has demonstrated in his clinic in Vienna, to gain entrance through an abnormal opening which almost always exists lower, when present at all. In case we cannot in this way penetrate the antrum, the "experimental puncture" should be made. Certainly the easiest place to do this is in the middle meatus, the wall here being mostly cartilage, but there is much danger of puncturing the orbital cavity (Fig. 1), especially if the lateral walls of the nose slope out-

ward. I much prefer the inferior meatus on account of safety, even though one must go through a thicker bony wall. Transillumination, as a means of diagnosis, is sometimes of use, but I think it can be relied on only in certain cases.

Now, having introduced either the canula through the normal opening, or the puncture needle into the cavity, we can syringe the cavity. As the nostril has been previously cleaned, the pus coming out with the water can proceed only from the antrum.

Having cleaned the antrum, two cavities remain, which open under the middle turbinated bone, namely, the anterior ethmoidal cells and frontal sinus.

Next we try to introduce the hollow probe into the



C, Middle turbinate, removed to show hiatus semilunaris, openings to antrum and anterior ethmoidal cells.

D, Lower turbinate.

E, Position of bent probe entering hiatus semilunaris.

F, Straight puncture needle going over middle of middle turbinate and entering sphenoidal cavity.

G, Hiatus semilunaris leading to frontal cavity.

Outline: Zuckerkandl.

natural opening of the anterior ethmoidal cells, and, if we can do so, we may proceed as in the case of the antrum and syringe it. The existence or non-existence of pus in the water gives a diagnosis for the anterior cells; and, if pus still appears in the middle meatus, it can come from no other cavity than the frontal.

In case we cannot find the opening of the anterior ethmoidal cells, we should try to insert the probe into the opening leading to the frontal cavity, using the hiatus semilunaris as a guide (Fig. 2, H F), the attempt, however, is rarely successful.

In order to facilitate matters, we may remove the anterior end of the middle turbinate by means of the cold wire snare or double curette. In this way it is not difficult, with the proper bend of the probe, to enter the opening. We can now syringe the cavity, which gives a positive result, as before.

Now, with any two cavities free from pus, it is necessary only to wait to see if there is still a discharge of pus under the middle turbinate bone, in which case we know it must come from the cavity which has not been washed out.

All cavities having an opening under the middle turbinate are now diagnosed, and we look to see if pus is coming down over the middle turbinate, or if it is present high up in the olfactory fissure, and we likewise examine with the posterior rhinoscope mirror to see if pus is making its way backwards over the turbinated bones into the naso-pharynx, as often happens. If pus is seen in the olfactory fissure or flow-

ing backwards into the naso-pharynx, we must consider the possibility of an involvement of a sphenoidal cavity or of the posterior ethmoidal cells. Empyema of these cavities is fortunately uncommon. Very rarely, indeed, can the natural opening of the sphenoidal cavity be seen, and then only in an exceptionally spacious nose in a state of extreme atrophy. When the opening can be seen of course the diagnosis is very easy. One needs only to bend the patient's head forward for a few moments when the pus, if there, will be seen at the opening; if it is too thick to run, we should use the syringe, as in the other cavities. Unfortunately, however, in most cases there is only a very narrow space to work in; therefore we must, by the use of landmarks, try to introduce the small caudula into the opening.

I find by directing the puncture needle upwards and backwards, using the floor of the nose anteriorly as a rest and going over the middle turbinate a little posterior to its centre, one is more apt to come into the natural opening or strike the anterior wall of the sphenoidal cavity (Fig. 2, G).

Having now determined whether there is an empyema of the sphenoidal cavity or not by syringing, we have only to wait a few moments to see pus appear in the olfactory fissure if it is present in the post-ethmoidal cells.

A cavity may, of course, be congenitally absent as also there may be abnormal openings between the various cavities. For instance, we may have a communication between the two frontal, the frontal and ethmoidal, or anterior ethmoidal and antrum. In rare cases the dividing wall between the two sphenoidal cavities may be wanting.

When disease is suspected in more than one cavity, it is difficult to make a diagnosis in one sitting. It requires unlimited patience and perseverance to be sure of the diagnosis of the cavities above the antrum.

Sometimes the middle turbinate folds over on itself and forms a cavity within itself, but we can readily ascertain if this is the case by the use of a probe and by the removal of the anterior end of the middle turbinate.

I do not consider that headache localized in any one part of the head can serve as a guide to the cavity involved, as we often see cases of antrum disease with the pain located in the frontal region, or ethmoidal disease with pain in the same place. Therefore, while headache is suggestive of cavity disease it cannot be depended on for the diagnosis of any particular cavity.

By adhering as closely as possible to the internal examination of the nose a much more accurate diagnosis can be made.

THE TREATMENT OF BURNS BY PICRIC ACID.—It is now nearly two years since, as was noted in our columns, the treatment of burns by picric acid was advocated in certain French medical journals. At a recent meeting of the French Surgical Society Walther stated that this remedy may produce in children symptoms of acute poisoning; moreover, it frequently causes so much pain that its use has to be abandoned. Others had seen untoward and even fatal results follow its use and the general consensus of opinion was that while it might be used with benefit in superficial burns, as it often instantly relieved the pain, in deep burns, its use was contraindicated.

Clinical Department.

THE STERILIZATION OF CATGUT.

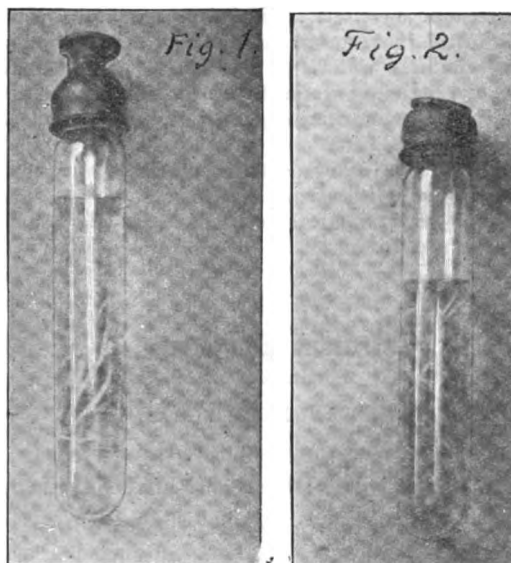
BY FARRAR COBB, M.D.,

Surgeon to Out-patients at the Carney Hospital and at St. Elizabeth's Hospital, Boston.

In the opinion of a large number of surgeons, non-absorbable ligatures and buried sutures should be seldom used, but many operators still adhere to the use of silk because of their uncertainty in regard to obtaining perfectly sterile catgut and animal tendon. The use of the commercial "sterile" catgut, furnished by many firms, cannot be too strongly condemned. While much of it may be sterile, it can never be depended upon. All suture and ligature material should be prepared by the operator or his trained assistants.

In the experience of the writer, catgut and animal tendon can be rendered sterile with the expenditure of but little time and trouble.

The methods of preparing both plain and chromicized gut detailed here are easy of execution, and



have been proved by practical use in the operations of Dr. W. M. Conant, as well as those of the writer, and also by careful bacteriological experiments, to be entirely reliable. I am led to publish them by the hope that they may be of some practical service to others.

The method of sterilizing the plain or unchromicized gut and animal tendon is as follows: The crude gut in coils or strands is placed in a solution of bichloride of mercury in stronger ether, of the strength of 1 to 1,000. It is allowed to soak in this solution for ten days. It is then wound on sterilized glass spools or rods and boiled in 95 per cent. alcohol for twenty-five minutes. This process of boiling in alcohol is rendered easy and safe by the use of Bohemian glass tubes, fitted with the rubber caps invented by Professor Stutzer of Germany. These tubes and rubber caps can be obtained from the Kny-Scheerer Company of New York. The rubber caps fit tightly over the top of the tubes. In the top of the rubber cap is a small slit which allows the escape of air and a certain amount of alcohol vapor at the beginning of

the boiling. At the conclusion of the boiling, when the alcohol cools, a vacuum forms above it in the tube, and atmospheric pressure forces down the elongated neck of the rubber cap, automatically and hermetically sealing the tube. By means of these tubes placed in boiling water, this usually troublesome process is made extremely simple. In Fig. 1 is shown the tube and cap before boiling. In Fig. 2 is shown the appearance of the cap after being forced down by atmospheric pressure.

The method of preparing chromicized catgut is one by which it may be boiled in water, for one-half or three-quarters of an hour. This method is a modification of that used by Champlin, of Chicago. Its important point is the addition of formalin to the bichromate of potash solution, which renders the boiling in water possible. The crude gut is soaked in ether corrosive (1 to 1,000), as in the preparation of the plain gut. It is then removed and exposed to the air a short time to allow the escape of the ether, after which, while still in coils, it is transferred to a mixture of bichromate of potash, 2 parts, formalin (40 per cent.), 4 parts, water, 94 parts. It is allowed to soak in this mixture four days, after which it is removed and the excess of the bichromate and formalin solution washed off by running water. It is then wound on glass spools and boiled in water for thirty or forty minutes. It is stored in sterilized glass jars in 95 per cent. alcohol.

The boiling in water does not weaken or injure the gut in any way, it is strong and pliable.

Careful bacteriological tests have shown it to be absolutely sterile.

Medical Progress.

PROGRESS IN LEGAL MEDICINE.

BY EDWIN W. DWIGHT, M.D., BOSTON.

THE TREATMENT OF DISEASE BY ANIMAL EXTRACTS.

FROM *La Semaine Médicale* we learn that the government of Bosnia and Herzegovania has made the use of antitoxin compulsory, both in the treatment of diphtheria and as a preventative in epidemics.

In the *Journal of the American Medical Association* (February 19, 1897) is published a paper by Dr. C. H. Preston, read before the Contemporary Club of Davenport, Io., entitled "Medicine and the State," in which the author calls the attention of his hearers and the public generally to the importance of suitable supervision, "by the State," of the manufacture of "the various potent animal products, to which the rapid growth of so-called serum-therapy is constantly giving rise."

Dr. Preston has given the subject considerable thought and corresponded freely with the authorities in various States, and quotes from the secretaries of the various State boards of health, including our own, as to the existing absence of control, and the advisability of such supervision and control by the boards of health. The subject is not one which apparently needs much argument, and it is rather surprising that, in these days of prolific legislative bodies, some action has not been taken on it before.

There is probably no class of experimental work

that is arousing more interest at this time than treatment of disease by means of animal extracts, toxins and antitoxins. Some, as the antitoxin of diphtheria, have been clearly demonstrated to be of the highest value, both as a preventative, and in the treatment of the disease. In other diseases, as rabies, tetanus and tuberculosis, this treatment is still in the experimental stage; but the results, as published, warrant us in the belief that within a reasonable time they, too, will have lost much of their terror.

Those who have used most these various "animal products" have the fullest appreciation of the importance of their careful and reliable preparation, and the dangers which are associated with the use of those, which, by reason of irregularity in their strength, contamination, or the presence of bacteria, become vehicles of destruction rather than weapons of defence.

Fortunately, up to the present time, this method of treatment is experimental, and the solutions used for the purpose are manufactured either by the experimenter, or by others equally scientific and equally interested in the success of the experiment. When the experimental stage has been passed, and by reason of increased demands and common use these substances become of commercial importance, the conditions will change; with competition will come increased temptation towards carelessness in manufacture, and much added danger to those who will be exposed, by reason of this carelessness, to serious if not fatal termination of such treatment.

We all know with what readiness a line of treatment may fall into bad repute, as the result of a few unfortunate results. It would indeed be unfortunate if progress along the broad lines of serum-therapy should be hindered by such accidents, especially if it lies within our power to remove the probability before we have to do with the reality. Is not now the time, before the example of Bosnia and Herzegovania is generally followed, to take such steps as will at least reduce to its least proportions this probability of danger which lies at our door?

THE CAUSE OF DEATH FROM ELECTRIC SHOCKS.

In these days, in which electricity is coming more and more into everyday use; in which, after an accident, the first thought is frequently, if not usually, as to who is responsible and from whom may financial compensation be received; and in which the association of electricity and civil suits is of common occurrence, the results of the experiments of Oliver and Bolan, carried on during the past year, and published in the *British Medical Journal* (January 15, 1898), are of considerable interest. These experiments have been made with a view of ascertaining the cause of death after electric shocks, and the report includes a large amount of research into the effect upon animals of the alternating current in varying doses. The paper is illustrated by a number of records of the blood-pressure, pulse and respiration of animals; before, during and after the application of the alternating current of varying voltage.

They conclude as follows: "When an animal is exposed to electric currents of sufficiently high potential, death is practically speaking instantaneous. The animal is thrown into opisthotonos, during which breathing is suspended, and the heart's action momentarily quickened, and then arrested; if the current is strong enough it is stopped at once. On shutting off

the current there occurs a deep inspiration, usually followed by an expiratory cry. This has often been noted by workmen when one of their number has suffered a serious accident, and by it their attention is called to one who is found dead as the result of electric shock. Dogs through which an electric current has been passed may, on breaking the current, not only breathe spontaneously and rhythmically for several seconds—even a minute or two—but bark loudly; and yet all the time the heart has ceased to beat. In a few experiments death has been due to contemporaneous cessation of the action of the heart and lungs. Primary cessation of the heart's beat is, without doubt, the general rule; while under no circumstances have we succeeded in causing primary arrest of respiration, followed by failure of the heart."

They also report the testimony of workmen employed in electric generating stations; who say that it is usual for men killed by electric shock to breathe a few times after life is otherwise apparently extinct.

From the facts within their knowledge they conclude that death in the "electric chair" must be instantaneous and without pain.

The results of these experiments are interesting in a number of ways. They throw some light on those cases in which, after what is apparently instantaneous death as the result of a powerful electric shock, suit is brought for "conscious pain and suffering," based upon the account of one or more cries from the victim, associated with respiration, more or less marked for an appreciable length of time. In a number of such cases, very considerable amounts have been recovered, the juries being, not unnaturally, impressed with the belief that a distinct cry, followed by more or less natural respirations for several seconds or minutes, would point towards distinctly conscious suffering. If these experiments be accepted, we must believe that it is probable that a number of such cases are those of practically instantaneous death.

EXPERT TESTIMONY.

While it is not possible at this time to report any decisive action as having taken place, in the line of improvement in the character of "Expert Testimony," as given in our courts, or in the system which governs such testimony, it is possible to report progress in the discussion of the subject. During the past year, a great deal has been said and written on the subject, and it is noted with pleasure that there appears less difference of opinion than has been apparent before.

In the *Boston Medical and Surgical Journal*, of January 7, February 11, September 23 and November 11, 1897, appear editorials which very accurately and fully cover the present state of medical opinion, as expressed during the past year.

Action has been taken, and committees appointed, by the Councillors of the Massachusetts Medical Society, the Medico-Legal Society and the Boston Medico-Psychological Society, for the purpose of co-operating "with the committees chosen by other associations, legal and medical, to promote legislation for the amendment of the methods in vogue relative to the use of expert witnesses."

A "proposed law" has been drawn up by Regent Foster, Esq., of New York City, providing that, "on application of either party, and after reasonable notice and hearing," the court may call one or more skilled

experts, who may be examined by either party or the court.

In the very interesting paper, "On the Duties of a Medical Examiner," read before the Massachusetts Medico-Legal Society, February 3, 1897 (*Boston Medical and Surgical Journal*, April 8, 1897), by the Attorney-General of Massachusetts, the same subject is touched upon, and "the almost inevitable and often unconscious tendency of experts to help the side that calls them" is spoken of. That such unfortunate conditions exist we all know, and that it is the system rather than the individual that is at fault is becoming more and more recognized. It is to be hoped that during the present year some change for the better in that system may be chronicled.

While the system still remains at fault, we are fortunate in being able to call attention to a very interesting example of what it is possible to accomplish, even under the present unfortunate conditions. In an article entitled "Medical Expert Testimony in the Kelley Murder Trial" (*American Journal of Insanity*, January, 1898), Dr. Walter Channing reports a case in which the methods in use and the results accomplished are most unusual, if not entirely unique. The account given by Dr. Channing is replete with interest; but the points which stand out with the greatest prominence are:

(1) That by means of the opportunities offered them the three experts for the State and the three for the defence were enabled to arrive at an "unanimous opinion," in a case which presented a number of unusual difficulties.

(2) That in this case, for the first time, the question of "limited responsibility," as the result of a lack of development, is recognized, not only by the experts, but by the prosecuting attorney and the court as well.

(3) That from the absence of the "hypothetical question" and the use of methods which enabled the various experts to arrive at a fair conclusion, and to so express it upon the witness stand, they were each able to leave it "feeling that he still had some self-respect remaining, and had not unwittingly stultified himself in giving his opinion."

While Dr. Channing is able to point out a number of details in which the opportunities for examination of Kelley might have been improved, it is evident that he was much impressed by the value of expert testimony obtained and presented as it was in this case over the methods which usually obtain in trials of this class.

The unanimity of opinion displayed by the experts and accepted by the court is of especial interest, inasmuch as the conclusions reached were not such as have been ordinarily accepted by the prosecution. These conclusions, as to character and degree of responsibility, Dr. Channing gives as follows:

"It was apparent that he was not the subject of any form of insanity, but it was equally apparent that he was quite unlike the ordinary young man of twenty-three. While he had a quick, wide-awake way of taking things in and some degree of so-called smartness, he had no maturity of judgment. His lack of moral sense was, however, the most striking indication he presented of an undeveloped mind and character. The conclusion was inevitable that he was a degenerate with congenital or acquired criminal instincts."

In the same number of the *American Journal of*

Insanity appears an article on "Modified Responsibility," by Allison, in the course of which he says: "The fact that such defectives often possess proclivities for committing unlawful acts may show simply a lack of educational advantages, and is not necessarily indicative of ingrained criminal traits. They are governed largely by habit and can easily be trained. When such cases come before the criminal courts they only forcibly illustrate what the medical profession, and especially the alienist, has long advocated, namely, that the status of the individual should be carefully considered in examining every problem of crime. The personality of the man should weigh largely as a factor in determining what disposition to make of him; whether to commit him to an educational institution, to a reformatory, or to a hospital for the insane. At the same time there should be secured the greatest personal liberty of the individual consistent with the reasonable safety of society, otherwise our charitable and penal institutions will become vast receptacles, filled with an overflowing population without educational advantages or reformatory influences and destined to increase the evil they seek to remedy."

Reports of Societies.

BOSTON SOCIETY FOR MEDICAL IMPROVEMENT.

JAMES G. MUMFORD, M.D., SECRETARY.

REGULAR Meeting, Monday, December 18, 1897,
DR. A. L. MASON in the chair.

DR. W. N. BULLARD read a paper on

THE INCREASE OF INTRADURAL PRESSURE IN HEAD INJURIES.¹

DR. H. W. CUSHING: I can add little to Dr. Bullard's accurate and graphic description. My personal observation corroborates fully what he has said. I have found, while operating, the condition he reports, but do not know its cause. I have not met at any autopsy I have witnessed lesions which I thought explained the intracranial condition.

DR. PRINCE: One or two thoughts have suggested themselves to me apropos of this subject. That the condition of affairs which Dr. Bullard described is frequently present I suppose all of us have seen; but it has occurred to me whether, after all, there might not be a possible fallacy in our acceptance of the idea of intracranial pressure. It is perfectly true, as he says, that on opening the brain after such conditions as he describes, the brain bulges and it does not pulsate, and after opening the dura it recedes and begins to pulsate. Passing by the point I was going to make first, and going to another point, it seems to me, if this is looked upon as an abnormal intracranial pressure, the explanation Dr. Bullard has offered is the only possible or probable explanation, because, as he says, if this increase of pressure is due to increase of cerebro-spinal fluid or edema, it would seem to be impossible that the pressure should cease within a few minutes after opening the dura, therefore it must be due to circulatory disturbance; and if Dr. Bullard would add increased active circulation as well as passive—[Dr. Bullard: That is included.]—I should think it would

thoroughly cover it. On the other hand, there is this possible fallacy: How do we know that this really does mean increased pressure, meaning by that an increased pressure over that which exists normally in the brain? No one has ever looked into the normal brain, into a skull not opened; and it seems to me it is very possible this condition of affairs may exist under normal conditions; that is to say, there may be a sufficient pressure, but still within physiological limits, to squeeze the brain against the surface of the skull and then stop all visible pulsation; in other words, if this pressure is due to the active circulation, may it not be due to that forcible action of the heart which so frequently does occur in head injuries and which is known as the pressure pulse? May it not be due simply to the increased action of the heart? and if so, may not that same increased action of the heart which occurs under other circumstances produce that same condition? Therefore the question would not be whether it was increased pressure, but whether it was abnormal pressure. On the other hand, the other thought has occurred to me: if this is the correct interpretation that Dr. Bullard has given, perhaps this increased pressure may be the cause of some of those unexpected endings, of death occurring in head injuries after trephining where there seemed to be no reason for death to occur.

But, however all this may be, there are other and more important conditions that must be considered that possibly may be factors in absent pulsation besides pressure. As I understand the reader, absent pulsation always means pressure, even in those cases where there is no local condition like a tumor or hemorrhage to cause it. So that whenever absent pulsation is observed we may conclude there is increased pressure from some cause. This opinion is certainly in line with the views of such surgeons as I have heard express themselves on the subject. But I am inclined to think that this conclusion can hardly with safety be drawn.

The point I wish to make is this: Before we can conclude that the absence of pulsation always means abnormal pressure on the brain we must exclude every other possibility, and it seems to me that the absence of pulsation may be due to other possibilities which must be considered. In injuries of this kind every possible causative factor must be considered. To appreciate this we must ask, What is the pulsation of the brain as a physical phenomenon? The answer is that it is a rhythmical increase and diminution of the brain substance due to the filling of its arterial vessels with blood. It is substantially the same phenomenon that occurs in any spongy or erectile body, though it is of less magnitude. This increase in volume is undeniably due to the fact that the blood enters at certain intervals of time the arteries in greater volume and rapidity than it discharges itself by the veins; and whenever this is the case there must always be a pulsation, no matter what the tissue. But, on the other hand, this pulsation may not necessarily be visible to the naked eye. The pulsation is exactly the same in kind as that which occurs in the finger or hand. Here, we know, as shown by the plethysmograph, there is always pulsation, but it cannot be detected without apparatus. With the plethysmograph graphic tracings may be made similar to those obtained from an artery. Now exactly the same conditions must exist in the brain; so long as the blood enters with greater

¹ See page 271 of the Journal.

volume and rapidity than it is discharged there must be pulsation. But it does not follow that it must be visible pulsation.

Now, in practice, when we speak of pulsation of the brain, we mean *visible* pulsation, not physiological pulsation. This distinction is important, for it has not at all been demonstrated that in the unopened skull a swelling of the brain of sufficient magnitude occurs with each systole of the heart to make a *visible* pulsation. It is possible—I do not say it is a fact—that the pulsations may not be of this amplitude (any more than they are of this amplitude in the forearm), and that they only become visible on opening the cranium and relieving the brain of its constricting mantle. If this is the case, the absence of visible pulsation at the moment of opening the cranium and dura *may* not be a pathological phenomenon, and therefore may not necessarily indicate abnormal pressure.

But, again, even if this objection cannot be sustained, I think that even if visible pulsations always occur physiologically in the brain, it has not yet been demonstrated that the absence of pulsation necessarily means pressure. If we keep in mind the mechanism of pulsation, it becomes plainly evident that anything that diminishes the arterial inflow of blood and reduces the volume—velocity—to that of the outflow in the veins must stop physiological pulsation, and visible pulsation would cease when the diminution of inflow reached a certain point. Hence it is plain that theoretically this might be brought about by a number of causes.

(1) For instance, it is conceivable that diminished cardiac action might sufficiently reduce the inflow.

(2) A thrombosis of a main artery like the middle cerebral, or a local constriction thereof, as from a small blood-clot at the base, might so stop the circulation through the artery as to stop pulsation in the convolutions at some distance from the point of constriction. Such blood-clots are not uncommon in fractures of the skull, being formed by gravitation of the blood to the base. Whether or not vaso-motor influences could stop visible pulsation is still more uncertain.

Now all I mean to say is, that there are possibilities which must be considered before coming to a positive conclusion in an injury of this kind.

DR. WALTON: Having been unfortunately prevented from hearing Dr. Bullard's paper, I do not know how much stress he has laid on the different factors producing intracranial pressure after trauma. I assume that he has alluded to serous as well as sanguineous effusion. Dr. Bullard himself was, I think, the first to call attention to the former element as increasing the area of paralysis in cases of hemorrhage. The justice of his view was impressed upon me very forcibly in a recent operation performed by Dr. Burrell on a case of Dr. Morrison's of unilateral cortical hemorrhage after a fall upon the head. The paralysis involved the arm and leg, if I remember rightly, as well as the face; on removing a button over the area indicated the dura was found tensely bulging and its incision was followed by a gush of serous fluid. The brain at this point was not lacerated, but congested. The hemorrhage itself was reached only after extending the opening downward by rongeur forceps. It was impossible to catch enough of this fluid for analysis to determine whether it partook of the nature simply of cerebro-spinal fluid, or of a serous exudation.

In a paper read at the last meeting of the American

Neurological Association, I described several cases in which local accumulation of serous fluid in the sub-arachnoid space was the only satisfactory explanation for local paralysis following blows upon the head with complete recovery in a few days, that is, in the time required for the absorption of such fluid. I assume that this accumulation of fluid has something of the character of a blister of the cuticle. Owing to the lack of unanimity in nomenclature, it may not be out of place to describe the cavity designated sub-arachnoid space. It is an established fact that beneath the dura a delicate membrane covers the brain, closely adherent to the summits of the convolutions and bridging over the sulci. In the meshes between this membrane and the pia proper (which follows the surface of the brain into the sulci) the cerebro-spinal fluid is for the most part collected, and this space may be properly designated the sub-arachnoid space.

That a local accumulation of fluid may be imprisoned in this space is shown by the case of McEwen, in which irrigation was followed by a local paralysis lasting four days. Such fluid has also been demonstrated by operation, notably in my own experience in a case reported by Dr. W. A. Brooks, Jr., and myself last winter.

It is not improbable that many of the apoplecticiform attacks in general paralysis, and other conditions of cortical vascular disturbance, may be due to such accumulations; this assumption certainly explains the rapid disappearance of symptoms in many of these cases far more satisfactorily than the assumption that we have to do with either a hemorrhage, embolus, or thrombus, and it seems to me that this possible pathological diagnosis should be borne in mind in all cases of moderate apoplecticiform seizure.

The practical bearing of this knowledge is in the direction of postponing operation in traumatic monoplegias, if symptoms do not deepen, allowing thus a few days for the absorption of serous exudation. This is perhaps especially important in young people and alcoholics. The rapid appearance of symptoms from such a lesion need not surprise us when we realize the rapidity with which an ordinary blister is formed.

Apart from these cases of local paralysis after trauma, we not infrequently see cases in which a severe blow upon the head is followed by symptoms of general concussion, but without the rapid recovery following simple concussion. In such cases mental sluggishness, discomfort, with more or less restlessness, slight rise of temperature and perhaps moderate delirium persist for some time. Sluggish pupils and diminution of knee-jerk are apt to be present. In such cases we must remember that in addition to the bruising, minute hemorrhages and possible laceration, we may have to do with a more or less congested cortex accompanied by serous exudation under the arachnoid. I have seen a number of such cases through the courtesy of the surgeons at the Massachusetts General Hospital. As an illustration, I will mention one seen, I think, with Dr. Warren. This young man was brought to the accident room with a history of having been taken up on the pilot of a locomotive. He had a temperature of 99.6°, pulse of 68. There were slight bruises on the trunk and legs, and a small superficial scalp wound at the vertex, but no evidence of fracture of the skull. There was no paralysis, but the pupils were sluggish, the knee-jerk wanting, and he was roused with difficulty. The next day the temperature

was still slightly elevated. Three days after he could be roused, but did not answer questions, and was somewhat restless. The knee-jerk was now absent on the right and very slight on the left. Six days later there was marked improvement, the knee-jerk was present and practically alike in the two limbs, though still moderate. The pupils were then alike, rather large and reacted perfectly.

The usual outcome in such cases is gradual return to the normal condition, recovery being often protracted, however, even after the symptoms of pressure have passed away. A number of months must usually be allowed for the complete return of mental balance and capacity for brain work. A hysteroid condition is not unlikely to persist for some time in young people. Too early attempts at resuming occupation are to be discouraged.

DR. KNAPP: I think we are indebted to Dr. Bullard for the long series of researches which he has made on this subject. I have, of course, seen a considerable number of cases in which this condition either existed or was distinctly to be suspected, where the increased intradural pressure was due probably to a serous effusion. In the majority of cases, however, that I have seen, where the diagnosis could be confirmed either by the autopsy or by operation, there has been something more than serous effusion, either laceration and contusion of the brain substance or else distinctly a hemorrhage somewhere within the brain. Those cases have in my experience been more frequent than the cases of serous effusion in which an autopsy or operation permitted distinct proof.

I must confess I am a little unable to understand Dr. Prince's hypothesis in regard to the cerebral circulation and it is a little hard to imagine a condition of intracranial pressure so great as to force the brain cortex against the skull, and subdue all pulsation therein in the normal healthy state. It interferes somewhat with our ideas of cerebral physiology, and I would recommend to Dr. Prince some careful studies by Mosso on cerebral circulation which I think throw a little light upon the subject.

I should like to ask Dr. Bullard whether, in these cases of marked increased intradural pressure, which he has explained by increased congestion of the brain substance, or an edema of the brain substance, he would eliminate entirely the question of an increased amount of ventricular fluid, — whether that may not also be a factor to be borne in mind in this increase?

DR. BULLARD: In the cases I have seen where the ventricle has been tapped there has not been an increase of fluid. This is also true of the autopsies. In regard to what Dr. Prince said, I don't think there is any reason to suppose any increase in the pulse — he speaks of strong pulse — is at all likely to produce intracranial pressure to such degree as we see it in these cases. It has been the view of the profession for many years that the symptoms of unconsciousness, coma, etc., occurring under such circumstances were due to pressure. It seems to me all the probability lies in that direction. The autopsy does not show very much in these conditions and in the same way that we do not find congestion of other parts of the body so we do not find it in the brain. We do not find in the brain in these cases sufficient cause of death. We find fracture of the bone or a small hemorrhage, but neither the fracture of the bone nor the small hemorrhage are sufficient of themselves to

cause death. Exactly how death is caused is not evident.

DR. C. H. WILLIAMS: I should like to ask whether an ophthalmoscopic examination of the fundus was made? In cases of intracranial pressure from brain tumor of longer duration we often get marked changes, but it would be quite interesting to know whether in these acute forms there was any marked difference in the retinal circulation.

DR. PRINCE: Inasmuch as my strange physiological theories do not seem to satisfy Dr. Bullard and Dr. Knapp, I wish to say that I understood Dr. Bullard to say that he himself included both active and passive congestion. If he wishes to take back his idea of the active circulation I think he should be allowed to do so. I understood him to reply in answer to my question that he included the active circulation as a factor; it was to this circulation that I was referring. That this is a possibility (I do not say fact) that must be entertained, I think Dr. Bullard has himself carefully weighed, perhaps unconsciously, when he discussed the possibility of ether being a causative factor. If ether was to be considered as a possible explanation, it naturally could only be by its effect upon the circulation. If such theories are not to be entertained I fail to understand why the ether hypothesis was considered.

In reference to Dr. Knapp's criticisms of the hypothesis I suggested, and of his statement that they are in entire variance with the experimental observation of Mosso, I would merely say, that Mosso's observations do not bear upon the matter at issue at all, excepting in one particular, and that particular, on the contrary, corroborates the hypothesis suggested. Mosso simply studies the *form* of the pulse curve of pulsating brains under varying conditions. The one particular I refer to is, that when by pressure on the carotid he retarded or stopped the arterial circulation, cerebral pulsation ceased, as would naturally be expected. Furthermore, Mosso's experiments were not to determine *visible* cerebral pulsation, but had to do with plethysmographic tracings of pulsations, a distinction which I have already referred to.

DR. BULLARD: In almost all the cases I have seen of hemorrhage, where the hemorrhage has been large or continuous the brain has not been increased, but suken from flow of blood or from pressure if the clot is large.

DR. PRINCE: Regarding the question of the pulse, I would say I have seen cases where with a very weak pulse there has been absence of pulsation. I have not been over my cases, but I am of the impression that in those cases where there was actual increased pressure there have been other factors, either tumor or hemorrhage, which were capable of causing this increased pressure. I understood Dr. Bullard that he was eliminating that class of cases and was only speaking of increased pressure where there were no focal conditions to cause it. I would like to ask Dr. Bullard whether, in the cases to which he has referred, he is quite certain he has excluded hemorrhage, etc., and has seen that condition of low pulse and increased intradural pressure? For myself, I must insist that when the pulse is low we must entertain the hypothesis that the absence of pulsation may indicate low pressure and not high pressure.*

* Since the above remarks were made I have seen a case which confirms the views above expressed and turns what I suggested as a possibility into a reality.

The case in the service of Dr. Burrell was one of middle meningeal

MASTOID OPERATIONS.

DR. CLARENCE J. BLAKE made the following remarks: In mastoid operations where it is necessary to remove the inner mastoid wall it not infrequently happens that the sinus is opened and that a hemorrhage occurs, which, while not necessarily serious in itself, interferes with the progress of the mastoid operation both by flooding the operating field and necessitating temporary obstructive tamponage. Under these conditions of hemorrhage I have, during the last three or four years, utilized the normal blood-pressure in the brain as exerted from within outward for the purpose of plugging the sinus from within, effecting this purpose by rapidly enlarging the opening into the cranial cavity through which the hemorrhage occurs. This may be very easily and rapidly done by means of the long beaked curette, and, with an opening of from three to ten millimetres in diameter, the brain pressure is usually sufficient to flatten the walls of the bleeding vessel against the edge of the opening in the bone; thus providing an effectual and permanent plug which permits leisurely completion of the operation. In one case of mastoid operation recently in which it was necessary to make a large opening into the cranial cavity posteriorly and anteriorly from the mastoid, both free bleeding from the sinus and hemorrhage from a meningeal artery were speedily stopped by this simple procedure.

(To be continued.)

Recent Literature.

Deuxième Session de l'Association Française d'Urologie. OCTAVE DOIN, Editeur. Paris. 1897.

The favorable anticipation that one would naturally form with regard to the report of the meeting of an association composed of so many distinguished members as that indicated in the above title is largely fulfilled in the present publication.

Both the articles contributed and the discussions which follow them are of much interest and value. The subjects presented have a wide range. They are introduced by the pathological physiology of renal retentions by Professors Guyon and Albarran.

In the course of this communication there are some important observations upon the modifications of the kidney function in cases of complete hydronephrosis and pyonephrosis, after the outflow of urine through the ureter is cut off, and again after the outflow has been re-established through an opening in the renal pelvis, such as is made, for example, in the operation of nephrotomy. Similar observations were made with partial obstruction in the above-named conditions, the results of which are also given.

hemorrhage on the left side. Two openings in the skull were simultaneously made, one on each side of the head, a large clot causing extreme pressure on the left. On the right no clot. On neither side after as well as before removal of the clot was there pulsation of the dura. On opening the right dura a very thin clot not sufficient to cause pressure was found on pia; removed. Still no pulsation. Nor did the brain bulge. No ether was given; pulse was very rapid, could not be counted, weak; later, at end of operation, brain bulged slightly on right, but no pulsation. About this time pulse stronger and could be counted.

Query: Was slight bulging due to later increased arterial pressure as shown by pulse?

Autopsy: A very thin lamella of blood lying on cortex on each side, in the opinion of the medical examiner not sufficient to cause any pressure. Of this he is very positive.

Here then is a case of absent pulsation without pressure but coincident with a very weak pulse and also slight bulging without pressure.

The subject of the recurrence of vesical calculus after lithotripsy and lithotomy is introduced by Pousson in an interesting article in which he institutes a comparison between the crushing operation as it is now practised and the cutting ones with reference to this point, and cites his personal experience of 35 lithotrities and five suprapubic lithotomies, in the former of which there were eleven recurrences and in the latter two. Pousson contends that recurrence is not more frequent after lithotripsy than after the cutting operations. His opinion is seen to be shared by a number of surgeons in the discussion that follows. Altogether the French are to-day the strongest defenders that we have of the modern method of lithotripsy as introduced to us here by Bigelow.

Other subjects are too numerous to be noticed in detail; their publication in this volume is a very valuable contemporary contribution to the literature of this branch of surgery, and contains some of the most recent advances made in it. We shall look for the appearance of the subsequent reports of the transactions of the society with interest.

Chirurgie des Voies Urinaires. Etudes Clinique. Par le DR. E. LOUMEAU. Bordeaux: Feret & Fils. 1897.

The author offers in this volume of 280 pages the results of his observations of a series of cases of surgical diseases of the genito-urinary organs. The work is an extension of a similar one published by him three years ago. The reports of the cases are thorough, and give evidence of accurate and careful observation. While there is but little that is new of importance, the work lacks perspective, and is in places prolix; still a careful perusal of the book will be useful to many readers.

Among the more interesting of the cases are two of rupture of the urethra, in one of which immediate suture was successfully applied. Some examples of cure of urethral fistula by suprapubic cystotomy and drainage are instructive.

Perhaps the most noteworthy case is that of an extensive cicatrix of the bladder, of crucial form, having an ulcerated surface at the point of crossing of the two arms of the cicatrix. The condition gave rise to very painful and frequent micturition. The diagnosis was made by means of the cystoscope. This rare condition of extensive connective-tissue formation was thought by the author to be due to a violent gonorrheal cystitis, with formation of phlegmon and resulting cicatrization.

The illustrations which accompany some of the subjects are excellent, as is also the general manner of the compilation of the book.

Text-book of Nervous Diseases. By CHARLES L. DANA, A.M., M.D. Fourth edition, revised and enlarged. With 246 illustrations. 8vo, pp. xi, 628. New York: William Wood & Co.

Five years have seen four editions of this work, which is still the best compendium upon the subject. The new edition is a great improvement upon its predecessors, since the outward appearance of the book is at last made more worthy its contents, by being printed with better type, on better paper, and on a larger page. The book has also been completely revised, many of the illustrations have been changed and a new chapter on alcoholic meningitis has been added. The chapters on the anatomy of the nervous system have been re-

written and many of the other chapters are practically new. The book has thus been brought up to date, and the present edition should replace its predecessors on the shelves of all who care to have the best modern treatise on the subject in one moderate-sized volume.

Organ Diseases of Women, notably Enlargements and Displacements of the Uterus, and Sterility. By J. COMPTON BURNETT, M.D. Pp. 156. Philadelphia: Boericke & Tafel. 1897.

This interesting volume of 156 pages is well worth the time that it will take to peruse it. It is written in support of the author's position that (in so far as one can judge from his text) none of the diseases of women now treated by surgery are beyond the sphere of "medicines given by the mouth." It consists in the main of a long series of cases, each of which is annotated with remarks laudatory of the methods of treatment employed, and with side flings at the surgical methods. A few quotations from the index may be interesting. "Allopaths' opinions on homeopathy are nothing but spiteful splutter"; "Clergyman's daughter, Julia, enlargement of the womb cured by sepsia"; "Hahnemann is a hero to Dr. Burnett"; "Lady married, twenty-eight years of age, with hemorrhoidal uterus"; "Rademacher, Dr. Burnett's opinion of"; "Womb defrauded"; "Dr. X. recommended support for enlarged womb."

The Diseases of Women, a Hand-Book for Students and Practitioners. By J. BLAND SUTTON, F.R.C.S. Eng., Surgeon to the Chelsea Hospital for Women, etc., and ARTHUR E. GILES, M.D., S.Sc. Lond., F.R.C.S. Edin., Assistant Surgeon Chelsea Hospital for Women, London. Pp. 436, with 115 illustrations. Philadelphia: W. B. Saunders. 1897.

This book labors under the disadvantage to American readers of being most essentially British in its therapeutics. The chapters on minor treatment in especial being so widely different from American practice as to be of use rather to experienced readers by way of the suggestions obtained from views so strongly in contrast with our own than essays which can be recommended to the student. It is, however, as might be gathered from the names of its distinguished authors, of very great value from its extreme fulness and wide views of the subjects connected with anatomy, the development of the organs, and their pathology. Upon these subjects, the plates, as well as the text, are of extreme interest.

A Manual of Obstetrics. By A. F. A. KING, M.D., Professor of Obstetrics and Diseases of Women in the Medical Department of the Columbian University, Washington, D. C., and in the University of Vermont, etc. New (7th) edition, 12mo, 573 pp., 223 illustrations. Philadelphia and New York: Lea Brothers & Co.

The fact that seven editions of this work have been needed within two years shows the popularity with which it is held. There is but little change from former editions, except in the chapter on Puerperal Septicemia, which has been re-written and much improved. Throughout the work the importance of antiseptic midwifery is accentuated with more emphasis than formerly, a desirable change in a student's manual.

The book is excellently arranged. Concise, and well illustrated and indexed. Its popularity is well deserved.

THE BOSTON Medical and Surgical Journal.

THURSDAY, MARCH 24, 1898.

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THE WASTE AND DESTRUCTION OF WHOLE-SOME MEAT.

THE saving of wholesome, valuable food is in one sense a saving of life, for it tends to keep such food within the reach of those of narrow means. The attitude of a nation compelled to stop all avenues leading to unnecessary waste, and of one still quite indifferent to leakages of all sorts, provided the public treasury maintains or at least appears to maintain the normal level of its resources, is well illustrated by the laws and regulations relating to the inspection and sale of meats in Germany and in our own country. Under the guise of a measure to protect the public health a law was put upon the statute books of Massachusetts which compels the rejection of all slaughtered animals showing the slightest traces of tuberculosis. That such a regulation is absurd need not be impressed upon physicians who are presumably well informed of the slight, hidden beginnings of this disease in man. What is needed is that the public should know it equally well. Statistics of carefully performed autopsies will probably show that from 50 to 80 per cent. of all cattle which react to tuberculin have only one or several thoracic lymph-glands affected. Traces of disease cannot be found elsewhere. The uniformity of such occurrences, as well as the deductions of pathological studies, make it certain that the disease is limited to these small foci. Affections of a traumatic or parasitic origin that would often nauseate the beef-eater are frequently seen in the liver, the lungs and about the stomachs of beasts slaughtered for food, but no sanitarian would think of condemning such beef. Our supply would soon give out entirely if such were done.

In Germany, on the other hand, animals in the earliest stages of tuberculosis are passed as equivalent to animals free from any traces of this disease. The authorities go a step farther and steam the flesh of animals which owing to the stage of the disease in which they are at the time of slaughter might not be absolutely

safe if the meat were consumed raw. Even in these cases experiments have shown that only in very rare instances are tubercle bacilli found in the flesh. But we may profitably carry the comparison a little farther. Germany is using some of the money thus saved in manning her great municipal abattoirs with a corps of educated and specially trained veterinary inspectors whose duty it is to see that no beef, pork or mutton goes on sale until the organs of every animal have been examined.

Our own meat inspection service, where it exists at all, is condensed, as it were, into the large cities, whereas outside of these circles with their ultra-rigorous measures, the butcher may practically do as he pleases. This is partly due to the fact that inspectors are appointed from all vocations in life except the one which presumably fits men for such work. Nothing prevents the non-inspected meat from reaching the markets of our large cities. In short, moderation and consistency are conspicuously absent in our system, if such a term may be applied to it.

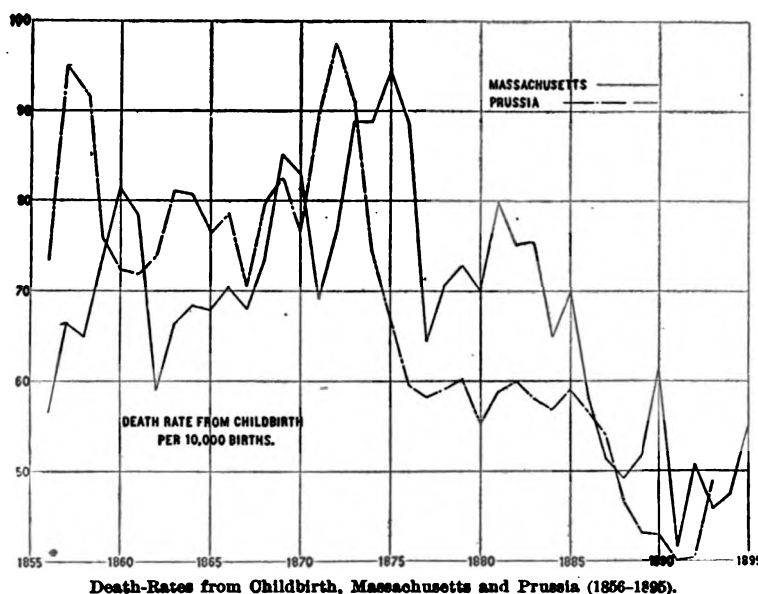
The comparison between Germany and our own State is not made to urge the extreme measures of the former country. These we may leave to the next generation. Our object is to call attention to a rational middle ground, accepted by all nations fostering the public health and based on common-sense. For a number of years the National Government has been enforcing certain moderate rules in the inspection of meat for the interstate trade which tend to protect both producer and consumer. As some change in our own law is being contemplated by the legislature, we hope that these interstate regulations will take the place of the present unwise law.

It is now and then argued that any change like the one proposed would offend the good taste and fastidious sense of the meat-eating public. This, however, is a shallow argument, for our tastes are largely the outgrowth of individual training and national custom. A little thoughtful reflection concerning most of our cherished articles of food will unearth something repugnant to an over-fastidious mind; the prolonged ripening of meat in storage, probably under the influence of micro-organisms adapted to low temperature, the bacterial ripening of butter and cheese, the gross filth which reigns undaunted in many dairies, the general inadequacy of abattoirs as regards the means for maintaining cleanliness, the possibilities lurking in vegetables eaten raw, these and many others that might be rehearsed, are far more conspicuous sins against our esthetic sense, than the small (often minute) tubercle which is found buried in a thoracic lymph-gland.

It is not improbable that if any test case were made of the law now in operation, nice questions of what constitutes disease and what health, might be raised, and the whole matter referred after all to the discriminating sense of the regularly appointed authorities.

ON THE DECLINE IN THE DEATH-RATE FROM CHILDBIRTH.¹

THE broad field of preventive medicine includes within its domain, not only those measures which are distinctly within the province of Boards of Health, but other matters in addition which interest the general practitioner. For example, the marked diminution in the death-rate from the various causes, conditions and accidents incident to childbirth may very properly



be considered as largely due to the improvements in midwifery which have followed the introduction of antiseptic measures.

The following statement is quoted from the last Annual Report of the Massachusetts State Board of Health, and embraces the results of observations made in Prussia and in Massachusetts for nearly identical periods of time (Mass., 1856-95; Prussia, 1856-93).

It is desirable to state clearly at the outset what deaths should be included under this title, since several terms are employed, and also what shall be the standard of comparison in stating a death-rate. It was therefore decided to include all deaths classed as from childbirth (under this term are embraced all deaths specified as from abortion, childbirth, miscarriage and puerperal convulsions), puerperal fever, metritis, metria,² puerperal septicaemia.

With reference to the standard of comparison these deaths are those of one sex only, and mostly at ages from fifteen to forty-five, hence it seemed best not to employ the living population as a standard, as is done in the other columns of the table, nor should the living births be used as a standard, since still-births

¹ Twenty-eighth Report of State Board of Health of Massachusetts, 1896, p. 504.

² An obsolete term adopted by Dr. Farr.

subject the mothers to the same puerperal dangers as living births. The standard employed is, therefore, the number of cases of births occurring in each year, obtained by taking the sum of cases of living and of still births.³ Each case of plural birth is also reckoned as a single case. The relative figures represent deaths per 10,000 cases of birth and show a considerable decrease comparing the two periods. The whole number of cases of birth in the forty years was 1,820,756, and the deaths by childbirth, etc., 12,075, or 66.3 per 10,000.

The death-rates by five-year periods were as follows: 68.6, 68.1, 76.2, 83.8, 73.3, 72.9, 54.4, 48.2.

There appears to have been an increase up to the fourth period and then a greater decrease to the close.

In the diagram and table herewith are presented the figures for Massachusetts and those of a similar table for Prussia, in each of which a rise appears during the first half of the period and then a greater fall to the close of the table:

Year.	Massachusetts (Death-rate per 10,000).		Prussia (Death-rate per 10,000).	
	Annual.	Five-year Periods.	Annual.	Five-year Periods.
1856	56.5	68.6	73.4	81.8
1857	66.4		95.0	
1858	64.8		91.6	
1859	73.5		75.9	
1860	81.3		72.3	
1861	78.4	68.1	71.8	78.0
1862	58.8		73.8	
1863	66.3		81.0	
1864	68.4		80.6	
1865	67.8		76.5	
1866	70.4	76.2	78.5	77.7
1867	68.0		70.5	
1868	73.5		79.7	
1869	85.1		82.5	
1870	83.0		76.7	
1871	69.1	83.8	89.5	84.3
1872	76.6		97.6	
1873	84.7		91.0	
1874	88.7		74.4	
1875	94.3		67.4	
1876	84.5	73.3	59.6	58.6
1877	64.4		54.2	
1878	70.6		59.1	
1879	72.8		60.2	
1880	70.0		55.3	
1881	79.9	72.9	58.8	58.5
1882	75.1		60.0	
1883	75.5		58.0	
1884	64.9		56.8	
1885	70.0		59.0	
1886	58.1	54.4	56.6	48.6
1887	51.4		53.8	
1888	49.1		46.6	
1889	51.7		43.1	
1890	61.5		42.8	
1891	41.6	48.2	40.0	43.3
1892	50.8		40.4	
1893	45.9		49.0	
1894	47.4		....
1895	54.9		....

The column of figures for Prussia in this table is taken from a paper by Dr. H. B. Brennecke, of Magdeburg, entitled "Erleichterung von Heilmitteln für Wochenrinnen,"⁴ and extends over a period of fifty years (1844-93). It contains the statistics of 296,867 deaths from childbirth and its incidents out of 44,096,659 cases of labor.

In commenting upon that portion of the foregoing table which relates to the mortality of child-bearing women in Prussia, Brennecke says: "Hegar in 1892, at the gynecological congress in Bonn, properly called attention to the fact that the sudden and surprising fall of the puerperal mortality curve in 1874 was not due to the influence of antiseptics (which were not employed at that time in the country districts), but may be attributed solely to the fact that in 1874 the administration of the official registration passed out of the hands of the clergy into those of

the civil authorities. I have no doubt," says Hegar, "that the collection of the statistics was conducted more accurately by the clergy than by the civil authorities, since in the country districts the clergy are especially well informed as to the condition of the families under their care. They are summoned in cases of childbirth and know when death in childbirth occurs. The civil authorities are not so well informed."

Whether the foregoing comments in regard to the cause of the changes in the death-rate from the incidents of childbirth in Germany are correct is a question. They certainly do not apply to the similar column of statistics for Massachusetts, since while the Massachusetts column shows precisely the same sudden fall three years later, it is not true that any change in the methods or the authorities collecting the statistics have here taken place, since they have from the very outset, in 1842, been collected by the city registrars and the town clerks throughout the State.

MEDICAL NOTES.

TARNIER'S SUCCESSOR.—Dr. Pierre Budin has been chosen to succeed Dr. Tarnier as Clinical Professor of Obstetrics in the Paris Faculty.

PAINLESS LABOR.—A Case of Painless Labor is reported by Frank S. Clark, M.D., of Cleveland, in the *Cleveland Medical Journal* for March, 1898.

DR. WILLIAM S. PLAYFAIR, of London, announces in the *Lancet* for March 5th his approaching retirement from the professorship of obstetrics in King's College, which he has held for twenty-five years.

THE CUVIER PRIZE of the Academy of Sciences, Paris, 1,500 francs in value, has been awarded to Professor Marsh, of Yale University. This prize is awarded every three years for the most noteworthy work published during that period on geology or zoölogy.

CONGRESS OF HYGIENE AND DEMOGRAPHY.—The Ninth International Congress of Hygiene and Demography will, as we have already announced, be opened at Madrid on April 10th, and will be continued for one week. The exhibition of hygiene will, however, be open for three months.

JOHNS HOPKINS HOSPITAL.—The plans for a new medical building at the Johns Hopkins Hospital have been completed. The physiological and chemical laboratories will be removed from the university to the hospital grounds. One floor of the new building will be devoted to pharmacology.

"WAR, PESTILENCE AND FAMINE."—"I'm for war, pestilence and famine!" So shouted a heedless agitator in our hearing the other day, and he shouted better than he knew. Let the thoughtful not forget that pestilence (yellow fever) and famine tread hard on the heels of war!

THE NEW YORK HOSPITAL LIBRARY PRESENTED TO THE ACADEMY OF MEDICINE.—The New York Hospital Library has been recently presented to the New York Academy of Medicine. The library is particularly rich in rare and old editions and will form a very valuable addition to that of the Academy.

THE DOCTORS ARE PUZZLED AGAIN.—News came to the daily papers of February 23d that Dr. G. W.

³ This method was adopted in order to make the figures comparable with those of other countries.

⁴ Vierteljahrsschrift für off. Gesundheitspflege, 1897, p. 81, vol. xxix.

Gary, of Franklin, Pa., and two other citizens of that city had died within a few hours of each other from spinal meningitis. The news-gatherer stated that "the doctors were puzzled" because the disease did not yield to the usual treatment. — *Cleveland Journal of Medicine*.

LIBERTY, LICENSE, LAW AND WITCHCRAFT. — Washington despatches state that Governor Brady, of Alaska, has notified Secretary Bliss that he is convinced it is time to take the natives in hand and break up the practice of witchcraft and compel them to conform to the laws of the United States. We seem to hear the Professor of Philosophy in Harvard College (James) protesting: "This is a religious or a quasi-religious movement; do you dare, O Secretary Bliss and Governor Brady, to thrust the coarse machinery of the criminal law into these vital mysteries?"

ACQUITTAL OF DR. LAPORTE. — Dr. Laporte, says the Paris correspondent of the *British Medical Journal*, whose trial for manslaughter consequent on the death of a woman after delivery created so much sensation, and whose sentence of three months' imprisonment rendered null by the application of the First Offence Act, roused so much indignation in the medical profession, has been acquitted by the Court of Appeal. Professor Pinard made several demonstrations to establish Dr. Laporte's ability and proper treatment of the deceased woman. A subscription was organized for Dr. Laporte realizing a fair sum. Dr. Laporte earns an honorable living as a shorthand writer.

AMERICAN MEDICAL ASSOCIATION. — The Committee of Arrangements for the Denver Meeting, June 7-10, 1898, announces that preparations for the coming meeting are well advanced. A large number of prominent men have signified their intention to be present and read papers, an excellent scientific programme is assured, and the indications all point to a large and successful meeting. Convenient and ample accommodations have been secured for the General Sessions, Section-work, Registration and Exhibits. The entertainment of members and their families is being planned on an elaborate scale and the Committee promises all who may come a most enjoyable time. Denver is an interesting city, and the State offers many and varied attractions to visitors. Local excursions are being arranged to take place after the meeting, that all may have ample opportunity of visiting various points of interest in the State and seeing the best scenery of the Rocky Mountains. The Committee confidently expects to obtain a one-half rate and thirty-day limit for the round trip on roads west of Chicago and St. Louis, and reduced rates on Eastern roads. The rates will be announced in the *Journal* of the Association as soon as definitely determined.

BOSTON AND NEW ENGLAND.

X-RAY APPARATUS. — A paper on some improvements in x-ray apparatus will be presented at a meeting of the Society of Arts at the Walker Building of

the Massachusetts Institute of Technology at 8 o'clock on Thursday evening 24th inst. Physicians and surgeons are invited to be present.

WORKING HOURS FOR NURSES. — A hearing was held before the Committee on Labor of the Massachusetts Legislature on March 22d on the proposed bill providing that nurses in hospitals shall not work more than twelve hours a day nor sleep in the room with a patient, or the adjoining room, if communicating. Dr. Cowles, Superintendent of the McLean Asylum, Dr. Howard, of the Massachusetts General Hospital; and other superintendents of hospitals and training-schools, together with from sixty to seventy-five nurses, appeared in opposition to this absurd and impracticable proposition. O Liberty, what crimes are attempted in thy name!

NEW YORK.

THE NEEDS OF BELLEVUE HOSPITAL. — In the report of his annual inspection of public hospitals in New York City, submitted to the State Board of Charities on March 14th, President Wm. R. Stewart directs special attention to defects which he found at Bellevue Hospital. Commissioner Kellar, the head of the Charities Department of Manhattan Borough, upon receiving a second control report from Dr. Louis W. Schultze, general medical inspector of the Department, gave out the following statement: "The whole matter in a nutshell is that the city has outgrown Bellevue. If the money were at my disposal I would build enough additions to the present structure to comfortably house patients and help." He then went on to state that he would at once have such improvements made as were most urgently demanded, but explained that owing to the limited amount of the appropriation given by the Board of Estimate and Apportionment to the Department it was impossible for him to do all that was desirable for perfecting the condition of the hospital.

HOSPITALS NOT LIABLE FOR NEGLIGENCE OF ATTENDANTS. — In a decision handed down by Justice Cohen in the Supreme Court he holds that hospitals are not liable for the negligence of attendants so long as it is shown that proper precaution has been exercised in the selection of such attendants by the hospital authorities. The case in which the decision was rendered was a suit brought by Miss Helen D. Ward to recover damages from St. Vincent's Hospital for injuries received while she was a pay patient at that institution. On one occasion she was placed in a bed between the sheets of which there had been left a hot-water bag, and her leg was so badly burned by contact with the bag that operative procedures were necessitated. The judge finds that the accident was due to the single careless or thoughtless act of one of the employees of the hospital, and that the plaintiff has a cause for action against that employee, but not against the institution.

DANGER OF FIRE IN LODGING-HOUSES. — The recent fire in a Bowery lodging-house, in which a num-

ber of lives were lost, caused the Board of Health to order a special inspection of the 113 similar places which are conducted under permits from the Board. The inspection was made on the night of March 15th and Sanitary Superintendent Roberts afterwards reported that all but five of the lodging-houses were found to be managed in accordance with the requirements of the sanitary code, and that the necessary changes would be made at once in those five.

THE MANHATTAN EYE AND EAR HOSPITAL. — In the twenty-eighth annual report of the Manhattan Eye and Ear Hospital it is stated that the work of the hospital has increased to such an extent that it was found necessary, not infrequently, to perform operations upon the eyes of one patient, and upon the ears, throat or nose of another at the same time and in the same operating room. In consequence of the inconvenience and embarrassment thus occasioned, the Directors decided to do away with the Department for Diseases of the Nervous System, and to convert the large room formerly occupied by that department into an operating-room for the departments of the ear, throat and nose. During the year the capacity of the hospital was further increased by the utilization of an adjoining building. In the report attention is particularly called to the care that is exercised in excluding unworthy patients who are able to pay; it being stated that 10 per cent. were excluded by the superintendent during the year, who acknowledged that they were able to pay for medical or surgical treatment.

DEATH OF ANOTHER ESQUIMAU. — The change of climate seems to have had a disastrous effect upon the Esquimaux brought to New York by Lieutenant Peary. Another of the six, the only woman in the party, died on March 16th, of pneumonia.

A DISPENSARY BUILDING FOR BROOKLYN. — Mr. Henry Batterman, a Brooklyn merchant, has given the sum of \$85,000 to the Bushwick and East Brooklyn Dispensary in memory of a deceased daughter, and it is announced that the dispensary authorities will erect a new building.

DEATH OF DR. CONKLING. — Dr. John T. Conkling, a prominent Brooklyn physician, died at his home in that borough on March 17th, at the age of seventy-three. Three years ago he retired from active practice.

Miscellany.

THE PROFESSOR OF PHILOSOPHY IN HARVARD COLLEGE.

A PROFESSOR of Harvard College has for a long time allied himself with the enemies of scientific medicine, and in the interests of faith-cure or mental science. The name of this spokesman of medievalism and ally of quackery is William James, and he is a professor (in Harvard College!) of philosophy. He opposed with all his powers the establishment of a medical

practice act in Massachusetts, and he is now laboring to prevent the enactment of a most humane law for the establishment of medical registration in that State. He says the modes of treatment attacked are religious; that the legislature has no right to legislate in medical matters, and that the motive of the profession is trades-unionism. Harvard College should be commanded to let every ass and idiot in the State compete in the lectureship and emoluments from the same, in philosophy. Would James feel some indignation if this should be done? Philosophy is a matter of religion, legislation and trades-unionism also. It is also, it is true, a matter of ignorance and of learning, quite as much as, and no more than, medicine. James, of Harvard College, says medicine is not a science, and therefore registration and examination are objectionable. But the philosophy of Harvard College and of all colleges is hardly any more of a "science," and therefore Bob Ingersoll and Munyon and Ayer should be allowed to teach philosophy in Harvard College quite as freely as James.

This is another instance out of many of the "highest culture," so-called, returning to primitive barbarism — the dog returning to his vomit. With consummate impertinence the Professor of Philosophy in Harvard College sets his dictum above that of the Professor of Medicine in the same college, and on a distinctly medical matter. *Ne sutor ultra crepidam!* It would seem to be a case for collegiate discipline. We do not know what power Harvard College has to discipline its atavistic professors, but for the sake of her good name we trust some means may be found to wash out of the memory of civilized people the shame brought upon her by the fact that one of her teachers glories in an alliance with one of the most outrageous guerilla-bands of anti-civilization. In the meantime let us all not forget that Professor James of Harvard College thinks those who treat the diseases of the human body need know nothing of disease. The most ignorant and depraved are as capable as the most honorable and instructed. "Impression and intuition seem to accomplish more than chemical, anatomical, or physiological information" — thus spake James, Professor of Philosophy in Harvard College! — *Philadelphia Medical Journal*.

HOW CONTAGIOUS DISEASES ARE DISSEMINATED.

To those who wonder how cases of contagious disease spread through a community, the following account, taken from the local paper of a town in Western Massachusetts, may not prove uninteresting.

On February 3d a young man who found occasional employment as a railroad news agent was taken sick in the hotel where he lived. A physician was called, who reported that the disease was small-pox, and told him to keep the door of his room locked and admit no one, except a friend, a freight brakeman, who remained with him and took care of him. The manager of the hotel was present, knew what the diagnosis was, and is supposed to have understood the importance of isolation. Notwithstanding this, as the boy said, "everybody in the house dropped in to see me." Many of his newsboy chums called, and some of them spent a good deal of time with him, sitting socially on the bed. He was also visited by several young women acquaint-

ances, who were employees in a shoe-shop, and who returned to their work. The newsboys returned also to their vocations.

Two days after the physician who was first called saw the case another physician was called, the diagnosis of small-pox was made, and the board of health was notified. Twenty-four hours later action was taken and a house on the outskirts of the town was secured for a pest-house, but no one in the town could be persuaded to furnish conveyance. Finally, a man living in a neighboring town, for the consideration of ten dollars, furnished a wagon, and the doctor and the brakeman who had acted as nurse made the transfer. In the language of the reporter: "The equipage had the street all to itself. People were afraid even to look at it. One young woman in town who chanced to see it has since been in a miserable state of unstrung nerves, and is thoroughly convinced that she 'caught it.'"

The brakeman has been quarantined in a room on the top floor of the hotel, and the hotel has been disinfected with sulphur and other disinfectants. Aside from this, no quarantine has been established, and the hotel has continued doing business as if nothing had happened. The barber shop, bathing establishment and saloon connected with the hotel continue to do a thriving business. Many people, however, avoid the street in which the hotel stands, and small boys having occasion to pass the building have been observed to hold their noses and run past at full speed. All who were known to have been exposed have been vaccinated, and vaccination is being generally performed throughout the town.

Correspondence.

AMERICAN SOCIAL SCIENCE ASSOCIATION.

CONCORD, MASS., March 21, 1898.

MR. EDITOR:—I notice that in your abstract of the interesting report of Drs. Stedman and Dana on "After-Care" you follow that authority in ascribing to Falret in France the origin of protective societies for the recovered insane, with the date 1841 as the time. Victor Parant, however, in Dr. Tuke's "Dictionary of Psychological Medicine" (Vol. I, 515) says: "The idea of protective societies is due to Cazauvieilh. In 1843 the first society was founded in Paris and organized by Baillarger. About the same time J. Falret founded a house of convalescence for women, the purpose of which was the same as that of the protective society; the aim being to keep them from relapsing by giving them at once an abode." I take it this is accurate as regards France.

But Germany was really the originator of this excellent idea, as of so many others by which mankind have benefited. Its first practical promoter was the Hofrath Lindpaintner of the Duchy of Nassau (born 1793, died 1848), whom Dr. Damerow of the Nietenleben Asylum described at his death as "perhaps the last non-medical director of a German institution for the insane," and who himself published in 1844 at Wiesbaden his useful "Nachrichten ueber die herzogliche Nassauische Irrenheilanstalt zu Eberbach, im Rheingau, von ihrer Begründung (1815) an bis zum Schlusse des Jahres 1842." Midway of this period, Herr Lindpaintner founded the first patronage society.

My old friend, Dr. Earle, who visited Eberbach in 1849, just before its patients were removed to their present asylum on the Eichberg, said in his "German Asylums," published in 1852-53: "In 1829 a Society of Patronage was originated by Mr. Lindpaintner, who became distinguished for the energy and ability with which, as director, he managed the asylum. This society was the first of the

kind, so far as I am informed. To the poor who are cured it extends its care and assistance during a period of two years after they leave Eberbach. Up to the year 1844 it had assisted 81 persons, at an expense of 1,348 florins" (page 199). It was then in quiet but successful operation a dozen years or more before Dr. Falret made his move in Paris. As Dr. Earle resided in Paris during portions of 1837-8-9, and knew Falret, I take it that his authority is good.

It seems to me that this statement is due to the memory of one of the early reformers of insane care, in a country of which we hear much less on this subject than of France and England, especially in the period preceding Dr. Earle's very useful book. But I may also call attention to a matter which Dr. Stedman and his colleagues overlook,—that the boarding-out system for the insane of Scotland, Belgium and some parts of Germany, gives one of the best opportunities for "after-care," and is so used in those countries to some extent, as it was by me during the three years (1885-88) in which I introduced and managed the Scotch system in Massachusetts. Some very striking examples of virtual recovery and self-support occurred among the 180 patients whom I placed in families, in consequence of the "after-care" which the State then exercised in such cases; and I doubt not more have occurred in the ten years since I ceased officially to exercise such "after-care." Were our State hospitals to have power to board out their inmates, retaining them under hospital authority, but in hundreds of families throughout Massachusetts, we could have at once the most efficient sort of after-care, with very little cost.

Very truly yours,
F. B. SANBORN.

RECORD OF MORTALITY

FOR THE WEEK ENDING SATURDAY, MARCH 12, 1898.

Cities.	Estimated population.	Reported deaths in each.	Deaths under five years.	Percentage of deaths from					
				Infectious diseases.	Acute lung diseases.	Diarrheal diseases.	Typhoid fever.	Diphtheria and croup.	
New York . . .	3,438,899	1223	441	9.28	21.44	1.04	.40	3.60	
Chicago . . .	1,619,228	—	—	—	—	—	—	—	
Philadelphia . . .	1,214,256	464	172	13.20	17.00	1.10	1.54	5.72	
Brooklyn . . .	1,160,000	—	—	—	—	—	—	—	
St. Louis . . .	370,000	—	—	—	—	—	—	—	
Baltimore . . .	560,000	223	75	7.20	22.05	.90	.90	4.05	
Boston . . .	517,732	223	63	4.95	17.10	.45	.45	1.80	
Cincinnati . . .	405,000	127	—	3.90	15.60	—	.78	2.34	
Cleveland . . .	380,000	67	37	9.20	9.20	3.45	—	2.30	
Pittsburg . . .	285,000	107	40	14.88	27.90	9.30	1.96	—	
Washington . . .	277,000	—	—	—	—	—	—	—	
Milwaukee . . .	275,000	—	—	—	—	—	—	—	
Worcester . . .	105,050	35	18	8.54	20.00	—	—	5.72	
Nashville . . .	87,754	26	6	3.85	11.55	3.85	—	—	
Fall River . . .	95,919	33	18	15.15	21.21	—	—	3.03	
Lowell . . .	87,158	29	5	—	20.70	—	—	—	
Cambridge . . .	86,812	22	5	8.30	20.75	4.15	—	—	
Lynn . . .	65,220	19	—	10.52	15.78	—	10.52	—	
Charleston . . .	65,165	—	—	—	—	—	—	—	
New Bedford . . .	62,416	24	8	—	20.80	—	—	—	
Lawrence . . .	55,510	20	4	—	10.00	—	—	—	
Springfield . . .	54,790	16	5	12.50	37.50	—	—	6.25	
Holyoke . . .	42,364	7	4	28.56	14.28	—	—	—	
Portland . . .	40,000	—	—	—	—	—	—	—	
Salem . . .	36,062	16	4	—	25.00	—	—	—	
Brookton . . .	35,553	3	0	—	—	—	—	—	
Malden . . .	32,894	8	3	12.50	—	—	—	—	
Chelsea . . .	32,716	9	3	11.11	11.11	—	—	—	
Haverhill . . .	31,406	8	4	12.50	25.00	—	—	12.50	
Gloucester . . .	29,775	—	—	—	—	—	—	—	
Newton . . .	28,990	9	0	—	—	—	—	—	
Fitchburg . . .	28,392	9	6	11.11	—	—	—	—	
Taunton . . .	27,812	6	2	—	33.33	—	—	—	
Quincy . . .	22,562	5	2	—	—	—	—	—	
Pittsfield . . .	21,891	—	—	—	—	—	—	—	
Waltham . . .	21,812	4	2	—	50.00	—	—	—	
Everett . . .	21,575	11	3	—	36.36	—	—	—	
Northampton . . .	17,448	—	—	—	—	—	—	—	
Newburyport . . .	14,794	1	0	—	—	—	—	—	
Amesbury . . .	10,920	—	—	—	—	—	—	—	

Deaths reported 2,864; under five years of age 973; principal infectious diseases (small-pox, measles, diphtheria and croup, cerebro-spinal meningitis, diarrheal diseases, whooping-cough, erysipelas and fevers) 257, acute lung diseases 572, consumption

389, diphtheria and croup 97, measles 46, diarrheal diseases 40, whooping-cough 22, typhoid fever 20, scarlet fever 15, cerebro-spinal meningitis 14, erysipelas 4.

From measles New York 22, Philadelphia 19, Pittsburg 2, Baltimore and Cleveland 1 each. From whooping-cough New York 10, Baltimore, Boston and Pittsburg 2 each, Philadelphia, Cincinnati, Cleveland, Cambridge, Springfield and Fitchburg 1 each. From scarlet fever New York 11, Philadelphia 2, Cleveland and Fall River 1 each. From cerebro-spinal meningitis New York 6, Boston and Holyoke 2 each, Providence, Worcester, Malden and Chelsea 1 each. From erysipelas New York 3, Boston 1.

In the thirty-three greater towns of England and Wales, with an estimated population of 11,218,378, for the week ending March 5th, the death-rate was 20.7. Deaths reported 4,454; acute lung diseases (London) 425, measles 232, whooping-cough 96, diphtheria 66, diarrhoea 37, scarlet fever 25, fever 25.

The death-rates ranged from 13.0 in Preston to 26.1 in Gateshead; Birmingham 24.0, Bradford 16.5, Croydon 19.7, Huddersfield, 17.3, Leeds 19.6, Leicester 21.7, Liverpool 22.9, London 20.9, Manchester 22.6, Newcastle-on-Tyne 17.5, Nottingham 23.2, Portsmouth 17.6, Salford 20.1, Sheffield 20.2, Sunderland 23.9.

METEOROLOGICAL RECORD

For the week ending March 12th, in Boston, according to observations furnished by Sergeant J. W. Smith, of the United States Signal Corps:—

Date.	Baro- meter	Thermom- eter.		Relative humidity.		Direction of wind.		Velocity of wind.		We'th'r. •		Rainfall in inches.		
	Daily mean.	Daily mean.	Maximum.	Minimum.	8.00 A. M.	8.00 P. M.	Daily mean.	8.00 A. M.	8.00 P. M.	8.00 A. M.	8.00 P. M.			
S...6	30.44	38	47	28	57	60	58	N.W.	S.W.	9	6	C.	C.	
M...7	30.4*	40	50	30	58	51	60	W.	S.W.	6	8	O.	O.	
T...8	30.42	42	48	36	54	56	62	W.	S.	6	8	O.	O.	
W...9	30.36	48	51	35	76	63	72	S.W.	S.W.	9	12	O.	C.	
T...10	30.40	50	50	40	79	69	74	S.W.	S.W.	9	12	O.	C.	
F...11	30.33	54	64	43	85	67	76	S.W.	S.	5	21	O.	O.	
S...12	30.12	52	60	45	85	82	84	S.W.	S.			O.	C.	.06
P														

* O., cloudy; C., clear; F., fair; G., fog; H., hazy; S., smoky; R., rain; T., threat; N., snow. † Indicates trace of rainfall. — Mean for week.

OFFICIAL LIST OF CHANGES IN THE STATIONS AND DUTIES OF OFFICERS SERVING IN THE MEDICAL DEPARTMENT, U. S. ARMY, FROM MARCH 12, 1898, TO MARCH 18, 1898.

CAPTAIN FRANCIS J. IVES, assistant surgeon, is relieved from duty at St. Francis Barracks, Fla., and ordered to Fort Wingate, New Mex., to relieve CAPTAIN ADRIAN S. POLHEMUS, assistant surgeon.

CAPTAIN POLHEMUS, upon being so relieved, is ordered to Fort Columbus, N. Y.

CAPTAIN WILLIAM E. PURVIANCE, assistant surgeon, is relieved from duty at Fort Columbus, N. Y., and ordered to Fort Morgan, Ala.

CAPTAIN ALLEN M. SMITH, assistant surgeon, will be relieved from duty at Fort Reno, O. T., upon the arrival there of FIRST-LIEUT. HENRY A. WEBBER, assistant surgeon, and ordered to Fort Hamilton, N. Y.

FIRST-LIEUT. JAMES S. WILSON, assistant surgeon, is relieved from duty at Fort Clark, Tex., and ordered to Fort Caswell, N. C.

The order assigning FIRST-LIEUT. THOMAS S. BRATTON, assistant surgeon, to Fort Leavenworth, Kan., is revoked, and he is relieved from duty at Fort Niobrara, Neb., and ordered to Tybee Island, Ga., for duty.

Leave of absence for three months, to take effect on or about April 1, 1898, is granted MAJOR JOSEPH B. GIRARD, surgeon, Jefferson Barracks, Mo.

Leave of absence for one month, on surgeon's certificate of disability, is granted CAPTAIN MADISON M. BREWER, assistant surgeon, to take effect upon the expiration of the ordinary leave of absence.

OFFICIAL LIST OF CHANGES IN THE MEDICAL CORPS OF THE U. S. NAVY FOR THE TWO WEEKS ENDING MARCH 19, 1898.

W. S. DIXON, medical inspector, detached from the "Brooklyn" and ordered at once to the hospital at Norfolk, Va., for treatment.

P. FITZSIMONS, medical inspector, detached from duty as a member of the Board of Inspection and Survey, Washington, and to the "Brooklyn."

J. E. GARDNER, surgeon, ordered to the "Dolphin," March 24th.

T. W. RICHARDS, passed assistant surgeon, detached from the New York Navy Yard and ordered to the "Machias," March 22d.

M. R. PIGOTT, passed assistant surgeon, detached from the "Machias," March 22d, proceed home and wait orders.

RECENT DEATHS.

JOSEPH DANIEL COUCH, M.D., M.M.S.S., died in Cambridge, March 16, 1898.

CHARLES HENRY RICKER, M.D., M.M.S.S., died in Lowell, March 16, 1898, aged forty-two years.

SIR RICHARD QUAIN, M.D., F.R.C.P. Lond., F.R.C.P.I., died in London on March 13th. He was born in Mallow, Ireland, in October, 1816, and began professional life as clerk to an apothecary in Limerick. He went to London to study and obtained the degree of M.D. from University College in 1842. He served as house surgeon and later as house physician in the University College Hospital, and shortly after graduation was made a fellow of the college. In 1851 he was chosen a Fellow of the Royal College of Physicians, and in 1860 was appointed a member of the senate of the university. He was for a long time chairman of the pharmacopoeia committee and had much to do with the publication of the last two editions of the British Pharmacopoeia. For many years he was physician to the Hospital for Diseases of the Chest at Brompton, and had also been for a long period physician to the Queen. He was the author of many medical publications and was editor of "A Dictionary of Medicine," the first edition of which was published in 1882.

BOOKS AND PAMPHLETS RECEIVED.

Typhoid Fever. By John Eliot Woodbridge, M.D., Cleveland, O. Reprint. 1897.

Clinical Tests of New Remedies. By Seth Scott Bishop, B.S., M.D., Chicago. Reprint. 1898.

Notes on Household Disinfection by Formaldehyde. By Wyatt Johnston, Montreal. Reprint. 1897.

Difficulties in Determining the Causes of Coma. By J. T. Eskridge, M.D., Denver, Col. Reprint. 1897.

Forty-second Annual Report of the Trustees of the Northampton Lunatic Hospital, for the year ending September 30, 1897.

Notes on the Non-surgical Treatment of Boils, Carbuncles and Felons. By L. Duncan Bulkley, A.M., M.D., New York. Reprint. 1897.

Fourth Annual Report of the Board of Managers of Craig Colony to the State Board of Charities, for the fiscal year ending September 30, 1897.

A Case of Exophthalmus without Pulsation, but with a Bruit, and Which Ended in Spontaneous Recovery. By David Coggin, Salem, Mass. Reprint. 1898.

Successful Removal of an Enormous Mesenteric Tumor and Nearly Eight Feet of Intestine. By Francis J. Shepherd, M.D., C.M., Montreal. Reprint. 1897.

Studies from the Department of Pathology of the College of Physicians and Surgeons, Columbia University, New York. Vol. V, Part I. For the collegiate year 1896-97.

Zur Bottin'schen Operation bei Prostatahypertrophie. Von Dr. Albert Freudenberg in Berlin. (Vortrag, gehalten in der Berliner medicinischen Gesellschaft am 20. October, 1897.)

The Present Status of Puerperal Infection. Some Practical Thoughts on the Development of the Human Race and Obstetric Nursing. By R. R. Kime, M.D., Atlanta, Ga. Reprints. 1898.

Transactions of the Nineteenth Annual Meeting of the American Laryngological Association held in the City of Washington, D. C., May 4, 5 and 6, 1897. New York: D. Appleton & Co. 1898.

The Medical Annual and Practitioners' Index: A Work of Reference for Medical Practitioners. By thirty-three British and American authors, 1898. Sixteenth Year. London: Simpkin, Marshall, Hamilton, Kent & Co. 1898.

The Antitoxin Treatment of Tuberculosis or the Direct (Tuberculin Preparations) versus the Indirect (Animal Serum) Method of Immunization against Tuberculosis. By Charles Denison, A.M., M.D., Denver, Col. Reprint. 1898.

The Nervous System and Its Diseases, a Practical Treatise on Neurology for the Use of Physicians and Students. By Charles K. Mills, M.D., Professor of Mental Diseases and Medical Jurisprudence in the University of Pennsylvania; Professor of Diseases of the Nervous System in the Philadelphia Polyclinic, etc. Diseases of the Brain and Cranial Nerves, with a General Introduction on the Study and Treatment of Nervous Diseases. With 459 illustrations. Philadelphia: J. B. Lippincott Co. 1898.

Original Articles.

OBSERVATIONS ON MENINGITIS IN INFANTS AND CHILDREN.¹

BY A. H. WENTWORTH, M.D.,

Assistant in Diseases of Children and in Pathology in the Harvard Medical School.

(Continued from No. 12, p. 271.)

TUBERCULAR MENINGITIS.

Etiology.—Tubercular meningitis occurs most frequently between the ages of two and seven years. It is not rare in infants under one year. The disease is practically always secondary to tuberculosis elsewhere in the body, and should be considered rather as a manifestation of a more or less general tuberculosis than as a distinct disease. In most cases there is an hereditary or acquired predisposition to tuberculosis. An inherited tendency may be transmitted by parents who are tuberculous. It has been claimed that the same predisposition can be transmitted by parents whose vitality has been lowered by chronic diseases, alcoholic excess, etc. An acquired susceptibility is often the result of previous diseases, such as rickets, long-continued gastro-enteric disturbances, measles, pertussis, influenza, focal pneumonia, etc. In some cases tubercular meningitis occurs in infants of one or two years of age who, up to that time, have been considered well.

Pathology.—Tuberculosis of the meninges differs from the general type of tuberculosis elsewhere in the greater degree of intensity of the accompanying merely inflammatory lesions. There will always be found some miliary tubercles along the course of the vessels, or some tuberculous tissue. But very frequently there will be caseation of the inflammatory exudation rather than a strictly tuberculous tissue. Macroscopically, there is often abundant fibrinous exudation over the base of the brain extending along the fissure of Sylvius and to some extent over the lateral convexity of the cortex. The ventricles are usually dilated and filled with a somewhat cloudy fluid. Numerous miliary tubercles may be seen along the vessels of the choroid plexus.

Symptoms.—In typical cases there is a period of from two or three weeks to the same number of months preceding the appearance of meningeal symptoms during which the child is not normal. It grows pale, becomes irritable and loses appetite and weight— indefinite symptoms for which there is no apparent cause. These symptoms are assumed to be due to a more or less general and slow infection with miliary tuberculosis. In a large proportion of all cases the involvement of the meninges is shown by vomiting. This is one of the most constant symptoms. The initial vomiting may be repeated several times, and may even continue for several days. It may occur coincidentally with the administration of food, but is not dependent upon it.

When the vomiting is persistent it does not yield to treatment, as is usually the case in vomiting due to gastric disturbance. The child is irritable. The bowels are usually constipated. The temperature in most cases is slightly elevated. Slowing, irregularity and intermittence of the pulse occur in many cases within a few days of the initial vomiting. A pulse-

rate of from 100 to 120, for example, is a relatively slow pulse for an infant of one year, affected with vomiting and even a slight rise in temperature. In older children not infrequently one observes 70 or 80 pulse-beats in a minute in tubercular meningitis. A slow pulse is not of so much diagnostic importance unless combined with irregularity and intermittence. This condition of the pulse is transient and disappears after a few days.

The patient is inclined to be apathetic and to sleep more than formerly. Headache is oftentimes not complained of. Usually older children admit that their heads ache when questioned, but otherwise not. The temperature is rarely more than moderately elevated throughout the disease until a day or two before the fatal termination. The average temperature varies from normal to 100° F. in the morning and from 101° to 103° F. in the afternoon. It is very irregular and atypical in its course.

Constipation is a quite constant symptom throughout the course of the disease. The progress of the disease is slow. During this early stage the most marked symptoms, sometimes for several days, are the increasing apathy, irritability when roused and emaciation. The latter is most noticeable in the neck and body.

During the first week or ten days following the initial vomiting most of the patients do not seem very ill. Gradually the cerebral symptoms become more noticeable. The apathy changes to somnolence and stupor. The eyes often remain partly open with widely dilated pupils which react slowly and imperfectly to light. A difference in the size of the pupils is not uncommon. Oftentimes the eyes have a peculiar "far away" expression which is characteristic. The patient takes no cognizance of his surroundings and rouses only when disturbed. In spite of the constipation there is but little formation of gas in the intestines and the abdomen becomes more and more retracted. There is an increasing tendency to hold the head fixed in one position and to lie upon one side or the other in order to avoid the pain in the neck caused by movements of the head. Pressure over the spinous processes in the cervical region often causes pain and will rouse the patient even when deeply stupefied. Sudden piercing cries, the so-called *cri hydrocephalique*, are not rare at this stage. Automatic chewing and sucking movements occur oftentimes. Trousseau's phenomenon is a constant symptom but not pathognomonic of meningitis. The same is true of fleeting erythemas, which appear in various places in the skin and rapidly disappear.

The condition may remain about the same for several days. The temperature remains moderately elevated and pursues the same irregular remitting course. The pulse is somewhat increased in rate. It is difficult to administer food. Retraction of the head may occur, but is oftentimes not marked. Paralyzes, except of the ocular muscles, are uncommon. Strabismus is frequently observed, but often is not permanent. Urine and feces are passed involuntarily. By this time the emaciation is extreme. Finally the disease progresses rapidly. The patient becomes comatose, oftentimes cyanotic. Convulsions may or may not occur. The temperature rises; the pulse becomes very rapid; the respiration often assumes a "Cheyne-Stokes" character; and death ensues. The sudden high rise in temperature and marked increase in the pulse-rate are

¹ From the Sears Pathological Laboratory of the Harvard Medical School.

almost always followed by death in from one to two days. The disease lasts for from three to six weeks after the initial vomiting.

Variations from the above type are common. Occasionally tubercular meningitis begins with a convulsion, usually not severe, and subsequently pursues the usual slow course. Now and then paralysis of one or more extremities occurs at an early stage of the disease. These paralyzes are usually not permanent. Very rarely tubercular meningitis begins with severe symptoms followed by coma and convulsions and death within a week. These cases cannot be differentiated clinically from other varieties of meningitis. Cases which last from eight to twelve weeks are by no means rare. Unusual types of fever are quite common. In cases complicated by a more acute general infection with miliary tuberculosis the temperature is not unlike that of typhoid fever, that is, a high and continued one. In these cases the disease does not necessarily run a shorter course. Now and then one observes cases which have a normal temperature until a few days before death. As stated previously, the terminal rise in temperature and pulse is usually followed by death in from one to two days. The writer recently observed a case in which these phenomena occurred and persisted for five days preceding death. Tubercular meningitis often runs a shorter course than usual in infants under one year and in children with advanced pulmonary tuberculosis. These cases frequently die within two weeks. Retraction of the abdomen does not always occur, although it is one of the common symptoms. Diarrhea may occur in infants in place of constipation. Cases in which retraction of the head, pain and tenderness in the neck are absent are not at all infrequent.

Diagnosis.—The diagnosis of tubercular meningitis in the early stage of the disease is often difficult. The most frequent error is to confound the disease with some milder affection, such as gastro-enteric disturbance. This is largely due to two things, namely, that tubercular meningitis begins insidiously without marked cerebral symptoms, and that the physician is off his guard and does not constantly keep in mind the possibility of its occurrence.

In the majority of cases tubercular meningitis pursues the following characteristic course: A gradual and often insidious onset; initial vomiting, followed within a week by a temporary slowing, irregularity and intermittence of the pulse; a moderate or slight elevation of temperature which is irregular in type; the early appearance of drowsiness and apathy, which slowly but steadily progresses to stupor and coma. (Marked changes in the mental condition are not noticeable from day to day, it is only by comparing intervals of several days that one perceives the progressive nature of the cerebral symptoms.) This does not apply to the last few days preceding death when the disease pursues a rapid course. The terminal rise in temperature and pulse-rate are constant. Dilatation of the pupils is usually an early symptom and a certain "far away" expression of the eyes is quite characteristic. The patient is generally quiet unless disturbed. Rigidity and retraction of the head and tenderness in the neck are not early symptoms as a rule, and may be absent at times. Emaciation is rapid and extreme. Constipation and a retracted abdomen are common. Convulsions, when they occur, generally do so toward the end of the disease. Tubercles

in the choroid are pathognomonic when present, but occur too infrequently to be of much value for diagnosis. Such a picture is quite different from that of epidemic cerebro-spinal meningitis with its sudden and often severe onset; the occurrence within a day or two of severe pain and tenderness in the head and spine; general hyperesthesia and the rapid development of severe mental disturbances.

Lumbar Puncture.—Tubercular meningitis can be differentiated not only from other diseases, but also in most cases from other varieties of meningitis, by means of lumbar puncture. The most important microscopic difference between the cerebro-spinal fluid from cases of tubercular meningitis and that from other varieties of meningitis is in the character of the cells. In tubercular meningitis, lymphoid cells are present in varying numbers, depending on the amount of exudation in the pia, whereas polymorphonuclear leucocytes are only occasionally seen. In other varieties of meningitis polymorphonuclear leucocytes, or "pus corpuscles," are found in large numbers, and small, round, or "lymphoid cells," are relatively scarce.

Other differences, some of which are not always so constant, are that the fluid in cases of tubercular meningitis is, as a rule, less turbid; there is usually less albumin (quantitatively); cover-glass preparations, appropriately stained, may show tubercle bacilli; inoculation of guinea-pigs with the spinal fluid produces tuberculosis; and, finally, in the other varieties of meningitis one can oftentimes obtain a growth on culture media of the organism which has caused the disease.

The cerebro-spinal fluid in tubercular meningitis varies from almost clear fluid to fluid which is moderately turbid. It has been stated frequently that the fluid is often perfectly clear like normal fluid. This is contrary to the writer's observations which are based upon a considerable number of cases in which he has performed lumbar puncture during the past two and a half years. Oftentimes the fluid appears clear when examined by *reflected* light, but if the test-tube containing the fluid be held toward the light and gently shaken, one perceives in these cases a slight *diffuse* cloudiness, as if very minute particles of dust were suspended in the fluid, which move about with the motion of the fluid. This diffuse cloudiness must not be confused with larger white particles of epidermis which are often seen in normal fluid as well as in cases of meningitis. The diagnosis should never depend upon the cloudiness alone. A microscopic examination always should be made after allowing the test-tube containing the fluid to stand in a vertical position for several hours. A slight diffuse cloudiness may result from the admixture of the fractional part of a drop of blood, or from minute particles of cotton fibre and dust. Now and then cloudiness may be caused by the presence of micro-organisms and their products in the fluid in cases of general infection. In tubercular meningitis a varying amount of fibrin is formed in the fluid after standing. Oftentimes the web of fibrin is quite small and if the test-tube containing the fluid has been placed in an oblique position the fibrin adheres to the side of the tube and may be easily overlooked unless the sides and bottom of the tube are scraped with the platinum wire. This may account for some of the cases in which observers have failed to find evidences of inflammation microscopically, as well as macroscopically, in cases of tubercular meningitis.

Cover-glass preparations of the fibrin, prepared in the usual way and stained with methylene-blue (preferably Löffler's), show a varying number of small mononuclear cells (lymphoid cells), occasional polymorphonuclear leucocytes and fibrin. Tubercle bacilli may be found by appropriate methods of staining. One must be prepared to examine a large number of cover-glass preparations, however, oftentimes fifteen or twenty, before finding a bacillus.

Cultures made from the fluid on blood serum remain sterile.

Inoculations of from one to two cubic centimetres of the fluid into the abdominal cavity of a guinea-pig produce tuberculosis in from four to six weeks. The fluid should be inoculated as soon as possible after its withdrawal, before the web of fibrin has formed, or in a given case, if delay is unavoidable, it is advisable to break up the fibrin mesh with a wire, because tubercle bacilli are never numerous in the fluid and most of them become confined in the fibrinous web.

Prognosis.—Tubercular meningitis is practically always fatal. A limited number of cases of recovery have been reported in which the diagnosis has depended upon the clinical symptoms alone. A few cases have been autopsied in which, in addition to the evidences of recent tubercular meningitis, there have been found older lesions due to some inflammatory process in the meninges, presumably tubercular. Finally, two or three cases of recovery have been described in which tubercle bacilli were found in the cerebro-spinal fluid obtained by lumbar puncture.

CASE VII. Male, five years of age. Entered the hospital on February 20th. The family and previous history were negative. The present illness began seven days ago with headache. Five days later the patient vomited several times. While undergoing examination in the out-patient's department the child became much frightened. He clung about his mother's neck and uttered inarticulate cries. The legs became rigid. This was followed by clonic movements of the legs, especially of the right one. There were athetoid movements of the fingers. There was no loss of consciousness.

A physical examination made after he entered the hospital is as follows: "The patient is fairly well developed and nourished. The mental condition is normal. The tongue is coated. The throat is negative. The patella reflexes are normal. There is no ankle clonus. The pulse is strong and somewhat irregular. Aside from irregular action the heart is not abnormal. The lungs are not abnormal. The liver and spleen are not enlarged. The urine contains no albumin."

The patient continued in the same condition for five days. On the 26th, he complained of headache and vomited. The vomiting continued for two days at intervals. During these two days the child became quite apathetic and stupid. The eyes were not abnormal. The action of the heart became slow and intermittent. This condition of the heart lasted for three or four days. The bowels were constipated. The headache was constant but not severe.

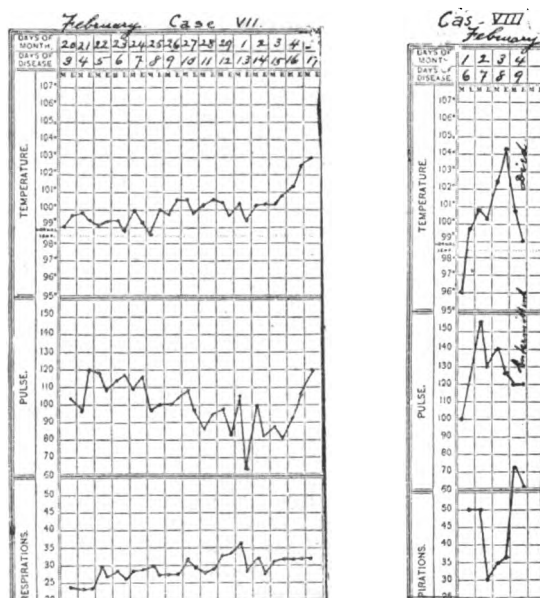
On March 2d the apathy had increased. The abdomen was retracted. The head was held rigidly and there was some tenderness in the neck. The *tâche cérébrale* was well marked. He lay quietly in bed unless disturbed. The urine was passed involuntarily.

Lumbar puncture was performed on March 4th, and a slightly cloudy fluid was obtained. The fluid contained lymphoid cells and a small quantity of fibrin. During the following three days the only noticeable change was the progressive increase in the stupor.

On March 6th there was a rise in the temperature and pulse. The patient was transferred to the surgical side

and trephined, and the ventricles were irrigated. After the operation the patient never regained consciousness. The pulse became slow and remained so for two or three days and then rose to 140. The child died quietly on March 12th. (The temperature chart for the last six days could not be found.)

Autopsy (Dr. F. B. Mallory). The body is much emaciated. The abdomen is retracted. There is an operation wound on the head above and behind the left ear. The valves and cavities of the heart are normal. The lungs are free from adhesions and light in color. There is little edema or atelectasis. There is a small quantity of secretion in the bronchi. Scattered beneath the pleura and throughout the lung substance are numerous tubercles varying in size from a pin-head to a pea. They are grayish-white and rather fibrous in appearance. No thrombi could be found in the pulmonary arteries or veins. The bronchial lymph-glands are much enlarged and "cheesy." The spleen is larger than normal and yellowish-gray in color and very nodular. On section there is little evidence of splenic tissue. The organ appears to be composed entirely of yellowish nodules varying in size from a pin-head to a



pea. Many of the larger areas are softened. The kidneys show a very few tubercles beneath the capsule. The stomach and intestines are normal. In the region of the stomach are numerous enlarged glands, many of them "cheesy." A few miliary tubercles are present in the omentum. The liver is pale and contains numerous rather large tubercles beneath the capsule and in the substance of the liver.

Brain. The dura is tense. In the pia on both sides at the vertex, extending over the fissure of Rolando and dipping down into the longitudinal fissure are two areas about six centimetres long and four centimetres wide. These areas are dotted with yellowish checks the size of pin-heads. They are more numerous on the right side. Close to and in the longitudinal fissure they are fused together forming yellow areas which resemble fibrino-purulent exudation. No tubercles are to be found at the base of the brain or in the fissure of Sylvius. The operative wound in the brain was not examined as it was desired to harden the brain "in toto" for later examination. The inner surface of the dura on the right side shows a number of single and agglomerated tubercles.

CASE VIII. Male, five months old. Entered the hospital on February 1st. The only history which could be obtained was that a sister had died of meningitis some time previously; that the mother had died of tuberculosis

within three days; and that the patient had been taken ill five days before with mild convulsions. The child had always been fed artificially.

A physical examination made at the time of entrance is as follows: "The infant is fairly well developed and nourished. There is considerable stupor. The pupils are widely dilated and do not react to light. There is slight convergent strabismus. There is no efflorescence on the skin. The anus and genitals are negative. The bones and joints are negative. There is no glandular enlargement. The anterior fontanelle is not tense and does not pulsate. There is a tendency to rigidity of the extremities. Movements of the head are not resisted and are not painful. The abdomen is but slightly retracted. Trousseau's phenomenon is present. The examination of the heart, lungs and abdomen is negative. The respiration is irregular and suggests an atypical type of Cheyne-Stokes respiration."

Lumbar puncture was performed, and about 15 c. c. of slightly cloudy fluid were withdrawn, in which a small quantity of fibrin formed later. Microscopic examination showed the presence of small mononuclear cells and an occasional polymorphonuclear leucocyte. There was no albumin in the urine.

The infant lived four days after it entered the hospital. The arms were rigid. It vomited on the second day. The stupor was marked. On the third day the temperature rose several degrees. On the fourth day the pulse became very weak and intermittent. The extremities were cool and livid. The temperature descended to normal, and the patient died quietly after an illness of nine days.

Autopsy (Dr. Wentworth). The infant is somewhat emaciated. Rigor mortis is present. The dependent portions are livid.

Head. On opening the dura there is no escape of fluid. The convolutions are somewhat flattened. The vessels are injected. The pia-arachnoid along the fissures of Sylvius and Rolando is infiltrated with opaque yellow fibrinous exudation. In the pia along the edge of the exudation, following the course of the vessels, and to a lesser extent on other portions of the vertex, are a number of slightly elevated grayish areas about one millimetre in diameter. Over the base of the brain, covering in the optic commissure, is a mass of yellow opaque fibrinous exudation. Numerous miliary tubercles are present in the meshes of the pia over the pons and medulla. The ventricles are distended with a somewhat cloudy fluid.

Body. Scattered over the pleural surfaces are numerous opaque yellowish-gray specks averaging one millimetre in diameter. There are scattered areas of atelectasis chiefly in the posterior and lower portions of the lungs, appearing as purple depressed areas. The consistency of the lung is but slightly increased over these areas. On section, the lungs contain considerable blood. The cut surface shows darker and lighter red areas. Distributed over the surface are numerous opaque gray areas averaging from two to four millimetres in diameter. Many of these areas show a pin-point opening in the centre. The heart, pericardium, stomach and intestines are not abnormal. On the surface of the liver and scattered through the substance are a number of miliary tubercles. Miliary tubercles are also present in the spleen and there are a few in the kidney. The mesenteric lymph-glands are somewhat enlarged. Many of them contain yellow opaque cheesy areas. The bronchial lymph-glands are considerably increased in size and are transformed into caseous material. The bladder is distended with urine. The peritoneum is normal.

Microscopic Examination.—Portions from the brain were hardened in alcohol; mounted in paraffin and stained with Unna's polychrome methylene-blue. The changes are most marked in and about the blood-vessels. In many of the smaller arteries the intima is much thickened and the lumen is almost occluded. The perivascular lymph-spaces are distended and filled with numerous plasma and lymphoid cells. There is a marked accumulation of cells

within the elastica and the endothelium is festooned. There is proliferation of the fixed cells outside the arteries and of the cells of the perivascular lymph-spaces. In the vicinity of the vessels there are a certain number of large cells with vesicular nuclei, similar to those found in cases of meningitis due to the diplococcus intracellularis but they are not so large or so numerous. Some of these cells contain lymphoid cells. In some sections there is a great deal of fibrin forming a meshwork in the vicinity of the vessels. In other sections there is very little. Necrosis of the exudation is marked. In some sections the vessels are surrounded by wide, sharply-defined zones of necrosis, containing fragmented nuclei and cells which are scarcely distinguishable. In other sections the necrosis is diffuse and not so extreme and extends more or less throughout the section. In addition to the changes in and about the vessels, there is a general infiltration of the meshes of the pia with lymphoid and plasma cells, together with proliferation of the fixed cells. There is but little change in the brain tissue.

(To be continued.)

THE TOXIN AND ANTITOXIN OF TETANUS.¹

BY THEOBALD SMITH, M.D.,
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TETANUS has received perhaps more attention from experimental medicine in recent years than its direct practical importance would seem to warrant. As it lends itself very well to the study of toxins and antitoxins, this attention is readily comprehended and fully justified since the essential principles of serum-therapy have come to take a permanent place in therapeutics.

When invited by your chairman to make some remarks this evening upon this subject I realized that there was much material from which to choose, but little that might be of immediate interest. I finally decided to present the main facts concerning the toxin and its physiological effects and the more recent work which has to some extent given us a better comprehension of the nature and activity of antitoxins and omit all technical details that strictly belong to the laboratory. As my own work, carried on under the direction of the State Board of Health, has been restricted to the experimental phase, I shall pass by all references to publish accounts of the successes and failures of tetanus antitoxin in practice since these are sufficiently dwelt upon in current medical literature.

It will be remembered that tetanus was first produced by Nicolaier in 1884 by introducing a little soil under the skin of small animals. The bacillus, though recognized by him, was not isolated until 1889, when Kitasato successfully accomplished this difficult feat. Like most anaërobic bacilli, it produces a spore in one end of the terminally inflated bacillus. When fully formed this spore appears as a round, refringent body, nearly filling out the swollen extremity. In stained specimens the spore-bearing bacillus appears like a round-headed pin, and is quite easily distinguished from most other anaërobes by its form. These spores are quite resistant to destruction and are in all probability the stage in which the infection is carried into wounds. In cultures the multiplication of the bacillus is suppressed when the air comes in free contact with the culture fluid. It is, therefore, anaërobic. It produces a small amount of gas. A disagreeable, penetrating odor is diffused from the exposed fluid. The germs of

¹ Read before the Clinical Section of the Suffolk District Medical Society, December 15, 1897.

this organism are widely diffused in nature. Hay dust, manured soil, and the excrement of animals are particularly favored with them. Besides man, horses and mules, cattle, sheep and goats are quite susceptible to infection; dogs much less so. Fowls are affected only by very large doses of the toxin.

In fluid cultures of the tetanus bacillus a substance appears diffused through the fluid whose presence is recognizable only by its pathogenic effects. These closely resemble the symptoms characterizing traumatic tetanus. Kitasato was the first to demonstrate this poison by removing from the culture fluid the bacilli and their spores by filtration. When introduced under the skin of mice and guinea-pigs the sterile filtrate produced tetanus in exceedingly minute doses. It is a very unstable substance. Exposure to light and air deteriorates it. Sunlight and air combined rapidly destroy its potency. As low a temperature as 60° C. (Kitasato), 65° C. (Vaillard and Vincent), destroys it completely in twenty minutes. Thermostat temperatures also speedily injure it. Even when kept in the dark and the cold, protected from atmospheric oxygen, its toxic power rapidly declines.

Brieger and his co-workers have made the most serious efforts to isolate the poison. A method recently published seems to lead to success, but the quantity of toxin obtainable was too trifling to submit to analyses. It was learned, however, that reducing substances and alkalies favor the poison, and oxidizing substances and acids injure it. It may be mechanically thrown down from the culture fluid by ammonium sulphate, calcium and aluminium phosphates and alcohol. With the ammonium salt precipitates may be obtained in which the poison appears in a very concentrated form and remains quite unchanged after thorough drying.

The pathogenesis of tetanus may be regarded as consisting primarily in the introduction of spores of the specific tetanus bacillus into a wound, the multiplication of the bacillus therein, and the absorption of the toxin manufactured during the multiplication. Considerable discussion has arisen over the conditions favoring multiplication in the wound. It has been claimed by some that the presence of other bacteria, such as the pyogenic forms, is needed to prepare the soil, as it were, for the tetanus bacilli. Such mutual aid is frequently observed in the bacteriological laboratory. In culture media freely exposed to the air anaërobic may grow if preceded by aerobes. Others claim that tetanus may develop without the aid of other bacteria. I have had occasion frequently to notice the favorable effect of bits of sterile tissue upon the multiplication of tetanus bacilli in culture fluids, and it is not improbable that dead tissues and exudates in a wound, whether sterile or not, may favor the tetanus bacillus.

There is considerable variation among animals in their sensitiveness to the tetanus toxin. Knorr determined that the relative sensitiveness of white mice, guinea-pigs and rabbits, calculated according to weight, was as 150 to 1,000 to 1. Horses are also very easily affected. Man may be regarded as very susceptible to the poison. Nicolas reported an accident on himself which led to tetanus. He pricked himself with the needle of a syringe charged with the culture filtrate. Though there was copious bleeding, contractions began after four days. In fourteen days they became general. The patient was kept under chloral, and finally recovered after forty-one days of illness. This powerful

poison is inert, however, when introduced into the body by way of the digestive tract.

The obvious effect of the toxin is a rigidity or tetanic condition of the muscles. In inoculated animals the rigidity begins at the place of injection (local tetanus), spreads to adjoining muscles and eventually becomes generalized. Not a little labor has been expended in determining what structures are directly acted upon by the poison. Is it the muscular tissue itself, the end plates of the motor nerve, the nerve, or the neuron in the cord of which it forms a part? Observers are generally agreed that it is the nerve element in the cord which is attacked. This is stimulated to an ever-increasing excitability whereby contractions are induced in the muscles supplied by it. Gumprecht explains the local spasm by assuming a transmission of the poison along the lymphatic sheath of the nerve. Once in the cord, neighboring cells are affected. Goldscheider believes that the whole neuron is affected by the local action of the poison on the terminal filaments of its axon at the place of injection. In man, contraction of the muscles at the seat of injury is very rare, trismus being usually the condition first recognized. Here the nerve elements governing the muscles of the jaw are regarded as the most sensitive. Possibly the absorption of at first infinitesimal doses from the wound produces a local immunity sufficient to suppress active contractions.

I may, in passing, mention the not generally accepted hypothesis of Courmont and Doyon, according to whom the cultures contain, not the poison, but a ferment capable of producing the poison in the body. This hypothesis is mainly based on the period of incubation, which cannot be materially shortened by increasing the dose.

Leaving now the physiological action and going somewhat deeper in our inquiries as to the ultimate action of the poison on the nerve cell, we are confronted with recent expressions of Behring and Ehrlich and their associates, that the toxins form a chemical union with the cells, which union becomes more and more firm with the progress of the disease. This union incapacitates the cell in proportion to the amount of the poison combined with it. In different animals different cell territories may be involved. Thus in the rabbit, Dönitz believes these cells to be widely distributed in the body, while in the guinea-pig the nervous elements are quite exclusively involved. This he establishes further by showing that the toxin disappears much more rapidly from the blood of the less sensitive rabbit than from that of the guinea-pig. Knorr's studies on the quite resistant fowls have led him to similar views.

Of most interest to the medical profession is the fact that immunity to this poison may be gradually induced, and that in the course of this acquisition of immunity antitoxic properties appear in the blood. In this respect diphtheria and tetanus, so different in most respects, behave alike.

I need not rehearse the laborious efforts of Behring and his associates to produce immunity in various animals. Now the horse is used quite exclusively when the preparation of an antitoxin is the object in view. Knorr has shown that for each animal there is a certain dose of toxin which is best adapted to call forth the successful reaction of the organism and make it less and less sensitive. If this dose is exceeded, the animal becomes over-sensitive and may succumb to smaller

doses than before the attempted immunization. For horses, minute doses treated with iodine trichloride are given at first, then the toxin without any attenuating additions. It is quite remarkable what enormous doses of the toxin a horse is able to bear after a time.

In the blood of the horse there appears after the administration of the toxin has been going on for some time an antitoxic substance analogous to diphtheria antitoxin. The existence of this substance has been demonstrated in several ways. By injecting it before the toxin, the effect of the latter is inhibited. By mixing it in suitable doses with the poison, the mixture is shown to be inert when injected into susceptible animals. Again, when pronounced symptoms of tetanus have already appeared either as a result of the injection of toxin or of spores of tetanus bacilli, the animals may be saved by the injection of the antitoxin. But the amount of antitoxin required to neutralize the toxin after it has been introduced into the body grows enormously with the interval of time which has elapsed since the introduction of the poison. Dönitz has recently demonstrated this upon rabbits. An amount of toxin was used which was equivalent to twelve times the minimum fatal dose. This was completely neutralized or made inert when one cubic centimetre of a 1-2,000 dilution of tetanus serum was mixed with it before injection. When the toxin was injected into the vein of one ear and the serum into that of the other ear, the amount of the latter needed to prevent tetanus was as follows:

When mixed with toxin before injection,	1 c.c. of a 1-2,000 dilution.
When injected 2 minutes later than toxin,	" " 1-1,200 dilution.
" " 4 " " "	" " 1-1,000 dilution.
" " 8 " " "	" " 1-200 dilution.
" " 15 " " "	" " 1-100 dilution.
" " 60 " " "	" " 1-50 dilution.

Dönitz explains this great increase in the demand according to the theory already quoted, that the toxin combines with certain cells in the body and that this combination grows firmer in time and hence requires more antitoxin to sever it. Large quantities of antitoxin by their bulk exercise a greater attractive force upon the combined toxin, and are still able to break the union, thus exercising true curative powers. In the same experiment he found that six hundred times the neutralizing dose of serum could still prevent the disease from appearing after an interval of two and three-fourths hours, although, as shown by the table, forty times the neutralizing dose was barely sufficient to prevent the disease after an interval of one hour.

Knorr has also made interesting experiments to demonstrate the curative power of the serum. He varied his tests by administering to one series of animals a single dose of toxin, to another a succession of doses, and to a third tetanus spores deprived of all adherent toxin by an exposure to 65° C. The spores were introduced under the skin on splinters of wood. When the symptoms appeared, or a certain length of time thereafter, serum injections were begun and given daily until the animal died or began to improve. When the minimum fatal dose was given, guinea-pigs were still saved when the serum injections began forty-eight to sixty-three hours later. In all cases, the disease was manifest when the treatment began. When the minimum fatal dose was given daily, the animals could be saved with daily injections of serum begun forty-eight hours after the first dose and twenty-four hours after the beginning of the symptoms even though

the dose of toxin was injected daily for eight or nine days.

The neutralizing power of tetanus serum is best illustrated by an example taken from my notes:

SEPTEMBER 17, 1897.

.0001	c.c. toxin fatal to a 570 gramme guinea-pig in 3 days.
.00008	" " " 534 " " " 8 "
.00005	" " " 561 " " " 4 "
2 c.c. toxin (40,000 minimum fatal doses) mixed with .2 c.c. serum	fatal to 557 gramme guinea-pig in 3 days.
2 c.c. toxin (40,000 minimum fatal doses) mixed with .3 c.c. serum	has no effect on a 470 gramme guinea-pig.
2 c.c. toxin (40,000 minimum fatal doses) mixed with .25 c.c. serum	has no effect on a 491 gramme guinea-pig.

In this test .25 c. c. of the serum used neutralized 40,000 minimum fatal doses mixed with it before subcutaneous injection.

Ever since the discovery of antitoxic substances in the blood, the manner of their action upon the toxins has been a subject of great interest. To-day the same opposing theories are upheld by their respective adherents as then. It is maintained, on the one hand, by Roux and others in France, that antitoxins act indirectly by stimulating cell activity; on the other, by Behring, Ehrlich and their associates, that antitoxins act directly upon toxins. This view Ehrlich has been able to demonstrate recently with reference to ricin very clearly. Its application to other toxins is gaining favor. When we consider the very sharply defined quantitative results obtainable when toxins and antitoxins are mixed in definite proportions before injection one is at least inclined to accept this view as the better working hypothesis. In developing it further, Ehrlich has constructed an hypothesis as to the origin of antitoxin. One of the older views, that it was the toxin transformed by the organism, is rejected, and the other, that it is a strictly animal product, is accepted and its formation associated with cell life. If we regard the cell substance as a complex molecule with lateral chains, the toxin is assumed to unite with one or more of these, incapacitating them. If only minute doses are introduced into the body so as not to injure the cell too much, the cell substance thus lost by union with the toxin is reproduced by the cell. The repeated injection of gradually increasing doses of poison if cautiously done stimulates the cell, so to speak, to an ever-increasing production of that part of itself to which the toxin becomes attached. This overproduction of a specific cell substance leads finally to a shedding into the blood stream where the shed material appears as an antitoxin ready to combine with any toxin for which it possesses definite affinities. This substance, as we know, is effective not only in the blood of the producer but in the blood of other beings into which it is introduced.

The disease of tetanus is less amenable to treatment with antitoxins than diphtheria because of the much larger quantity of serum needed when the symptoms have once appeared. Behring has insisted that not less than five hundred units should be injected at the outset and preferably directly into the blood stream. To obtain such a concentrated product the manufactory near Frankfort, Germany, which supplies the world with diphtheria antitoxin under Behring's general supervision, dries the serum to a powder which in the finished state contains 100 units in one gramme.*

* Five grammes of this, or five hundred units, are sold in Germany for about \$7.50.

Liquid serum for immunizing purposes is dispensed in doses of 25 units contained in five cubic centimetres. The unit, as settled upon by Behring and Knorr, is quite different from that of the diphtheria unit. One-tenth of a cubic centimetre of the normal serum instead of neutralizing 10 fatal doses of toxin as in diphtheria is expected to neutralize, for 250-gramme guinea-pigs, about 100,000 minimum fatal doses; for white mice, 800,000.

Under the direction of the State Board of Health I have been working upon this subject mainly for the purpose of obtaining a serum which might be tried in our hospitals to test the general efficacy and promise of the serum treatment of tetanus. Some of this serum has been subject to the call of those willing to use it since midsummer. The strength of the liquid serum at that time was equivalent to from one-half to one Behring-Knorr unit per cubic centimetre, or calculated according to one gramme of the body weight of a guinea-pig of 250 grammes, its strength was 1 to $5 \times 250 \times 100,000 = 1$ to 125,000,000. With continued treatment of the horse with larger doses of toxin and the eventual drying of the fluid a stock of strong antitoxin will become available for use in the State.³

Ready access to such serum is especially desirable whenever injuries have occurred which may lead to tetanus. Immunization is possible with comparatively small doses. The main obstacle now confronting the experimenter is the instability of the toxin. This can be partly overcome by additional labor on his part, and the vexatious delays occasioned by it can be prevented by much additional expense, so that the remedy at best will remain expensive. I am inclined, on the whole, to regard the researches upon tetanus as of most value in advancing our knowledge upon toxic and antitoxic substances and in supplying new data for the treatment of other diseases.

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³ In a recent article in the *New York Medical Journal* Lambert gives a brief résumé of the work done in this field by him for the Board of Health of New York City. In this article he greatly overestimates the strength of the serum produced, claiming a strength of 140 units per cubic centimetre or 8,000 units in a dose of 20 cubic centimetres. This error is excusable on account of the obscure way in which facts concerning it have been published by Behring and Knorr. Lambert states that one unit protects 1,000,000 grammes white mice, and that one cubic centimetre of his serum protecting 140,000,000 grammes, contains therefore 140 units. Behring stated some years ago that an antitoxic unit protected 1,000,000 grammes white mice when the serum is injected fifteen minutes after the toxin. This is quite a different thing from injecting a mixture, and a much more severe test. According to a letter from Dr. Knorr, which confirms the statements made in his *Habilitationsschrift* (1895), the present antitoxic unit, which is about the same as that defined by Behring, instead of protecting 1,000,000 grammes white mice must protect 45,000,000 to 50,000,000. Hence the serum referred to could have contained at most between two and three units, instead of 140, as claimed, and a 20 cubic centimetre dose would contain between 40 and 60 units. While there is no absolute necessity for adhering to the arbitrary unit of Behring-Knorr, one unit being as good as another, it should be remembered that when a comparison of the results of treatment is sought after only a uniform standard can make such comparison of any value whatever.

TWO CASES OF TETANUS TREATED WITH ANTITOXIN.¹

BY F. B. LUND, M.D.

THE two cases reported in this paper were both treated at the Boston City Hospital, and were treated with antitoxin furnished by the Massachusetts State Board of Health. The first case, which recovered, can hardly be classed among the most acute cases, as, although the incubation period was only five days, the progress of the case was not marked by rapidity.

The second case belongs to the most acute or fulminating type, in which toxin absorption is from the first so rapid that it is impossible to administer antitoxin units in sufficient amount to neutralize the toxins.

The first case occurred in the service of Drs. M. F. Gavin and Paul Thorndike, and the second in that of Dr. W. P. Bolles; and I am indebted to these gentlemen for the privilege of reporting the cases.

CASE I. P. M., age fifty-one, laborer, entered the Boston City Hospital on July 25th. Ten days ago, while at work driving piles, he had fallen into a ditch, and as he fell the end of one of the piles struck him in the occiput, and one over the right malar bone, causing a lacerated wound, which was sutured by a physician to whom he was taken that day. The physician applied so tight a bandage that he was unable to open his mouth, and could take only liquid food. Five days later the bandage was removed and the stitches taken out. On that day the patient found that he still could not open his mouth, and suffered some pain in the wound. On the seventh day after the injury he came to the Out-patient Department at the Boston City Hospital, and was seen by Dr. J. B. Blake, who found the wound septic, with great swelling of the cheek, together with inability to open the mouth more than a slight distance, which was ascribed to the swelling of the soft parts at the angle of the jaw. The wound was irrigated, and dressed with moist antiseptic gauze.

On the morning of entrance the jaw was found firmly set, so that the mouth could be opened only about one-eighth of an inch, by tonic contraction of the masseters and temporals; there was also tonic contraction of the sterno-mastoids and posterior cervical muscles, and complete right facial paralysis, and partial deafness of right ear. The wound over the right malar bone was partly healed, and covered by a scab. The general condition was good, temperature 99° and pulse 80. On the afternoon of the day of entrance 20 c. c. of antitoxic serum furnished by the Massachusetts State Board of Health were injected under the left scapula.

On the following day there was no apparent change in his condition. An attempt to open his mouth sufficiently to put his tongue out resulted in his biting his tongue. Severe pains in the head and neck was complained of.

July 27th. There was less pain and stiffness of the neck, and he was given 20 gr. of bromide of potassium.

July 28th. He again bit his tongue, and was given 40 c. c. of antitoxin. At midnight on July 28th, he had great pain in his head and neck, had bitten his tongue several times, and bitten his finger while trying to pry open his jaw. A gag was introduced to prevent his biting his tongue, and 40 gr. of bromide of potassium and 60 c. c. of antitoxin were given.

July 29th. Much more comfortable. Bit his tongue again in the afternoon, and was given 75 c. c. of antitoxin.

July 30th. Could open his mouth half an inch, but complained of stiffness and pain in the face and back of the neck, and was given 55 c. c. of antitoxin.

August 1st. The skin of the back was reddened over a large area surrounding the site of the injections. A sinus remaining in the wound in the cheek was curetted, irri-

¹ Read before the Clinical Section of the Suffolk District Medical Society, December 15, 1897.

gated with peroxide of hydrogen, and packed with sterile gauze.

August 3d and 4th. The patient felt weak and nervous, and had stiffness of the neck muscles and difficulty in breathing. On the 3d he was given 60 c. c. of antitoxin in three doses of 20 c. c. each; and on the 4th he was given 40 c. c. of antitoxin. His body was covered by an erythematous eruption, wheal-like in places, and attended by itching.

August 5th. He received 60 c. c. of antitoxin. Patient seemed a little stronger, but was still weak and nervous.

August 6th. Marked improvement took place. Antitoxin, 20 c. c.

August 7th. Condition the same as yesterday. Antitoxin, 40 c. c.

August 8th. He had markedly improved; and on the 9th the temperature had fallen to normal, where it subsequently remained.

From this time on improvement steadily continued; and on August 31st he could open his jaw one and one-half inches, and the facial paralysis had improved so that he could nearly close his right eye.

On September 8th he was discharged well, except for slight paralysis of the muscles of the eye and mouth.

In this case the urine was from time to time carefully examined by Dr. J. B. Ogden in order to determine whether the injections of such large amounts of horse serum would result in renal irritation. On August 3d the urine showed the amount in twelve hours to be 345 c. c., containing 12.79 gm. of urea. This would correspond to a twenty-four-hour amount of 690 c. c., containing 25.58 gm. of urea. The specific gravity was 1.027; there was a very slight trace of albumin, and the sediment contained a few hyaline and fine granular casts and an occasional blood globule. During the following days the specific gravity fell to about 1.015 where it continued, and the albumin became diminished to the slightest possible trace. On August 18th the urine was normal.

Beyond, then, a slight transient active hyperemia, we have no evidence of renal irritation which might be attributed to the antitoxic serum.

CASE II. S. B., age twenty-eight, carpenter, appeared in the writer's out-patient clinic, on September 1st, complaining that since yesterday noon he had been troubled with slight stiffness of his lower jaw, which had troubled him about eating. He felt perfectly well otherwise, and had slept well last night. He had a slight pain in the small of his back, and this morning could not open his jaw one-half an inch, he thought. When asked whether he had received any injury, he at first denied that he had, but later remembered that six days ago while working in a new building he had stepped on a nail which had penetrated his right foot at the base of the great toe. He had treated the wound himself with turpentine and continued his work. The wound had healed without any pain or further trouble.

On physical examination there was found slight rigidity of the masseters, but none of the neck or back muscles. There was a punctured wound on the sole of the foot at the base of the right great toe, which was clean, and had apparently entirely healed.

The man's serious condition having been explained to him, he consented to enter the hospital at once, and he was immediately taken to the accident-room. The wound was thoroughly reopened, curetted, irrigated with corrosive-sublimate solution, and packed with iodoform gauze. He was given subcutaneously 40 c. c. of antitoxin.

In the evening of the same day he had severe pain in the back of neck and back, and was given 20 c. c. of antitoxin at 7 P. M. Later he had spasms of the jaw and bit his tongue. He was given 20 c. c. of antitoxin. His condition, however, continued to grow worse, and the next morning he was on the verge of opisthotonos; the pain was severe and constant, and there was marked rigidity of the spinal muscles. Occasional convulsive movements with throwing back of the head occurred at intervals of one to one and a half minutes; the jaw could not be opened at all. Antitoxin, 100 c. c., causing temporary increase of symp-

toms. In the afternoon he was more comfortable and the spasms less frequent. He was given 40 c. c. of antitoxin, and the dose repeated at 9 P. M., making 180 c. c. that day.

September 3d. The pain was worse, the spasms were increasing, and 40 c. c. of antitoxin were given. No interruption, however, took place in the course of the disease, and in the afternoon every one or two minutes there was spasmodic contraction of the muscles of the neck and back, hyperesthesia of the abdomen and severe pain. The head was slightly retracted, and he could not move it. The jaw was firmly set, and swallowing very difficult. Antitoxin, 100 c. c. Later in the evening the pain was so severe that a quarter-grain of morphine was given; and after this he dozed occasionally, being awakened by spasms.

He grew weaker during the night, and died at 4.45 A. M., September 4th.

The autopsy in this case was performed by Dr. F. B. Mallory, and the organs sent for examination to Dr. J. H. Wright, who reported as follows:

Microscopical Examination of a Case of Tetanus from the Pathological Laboratory of the Boston City Hospital.

Sections of the spinal cord in the cervical region, of the cerebral hemispheres, of the pneumogastric, optic, facial, fifth, lumbo-sacral, and posterior tibial nerves, and of spinal and Gasserian ganglia were prepared according to the method of Marchi. This method is employed to demonstrate degenerated myelin in nerve tissue, if present. It depends upon the fact that degenerated myelin is stained black with osmic acid.

The microscopical examination of the sections from the nerve tissues above mentioned showed in all of them well-marked degenerative changes. These consisted in the presence throughout the white matter of the cord and cerebral hemispheres, and among the fibres of the nerves, of more or less numerous black or grayish granules and globules, of variable size and shape. These globules and granules were, for the most part, small in size, the largest not exceeding a good-sized nerve fibre in diameter. In the sections of the spinal cord these black bodies are sometimes within the sheath of the nerve fibre and may have a crescentic shape — sometimes they lie between fibres. In the nerves they seem to be mainly between the fibres. The fibres of the pneumogastric and optic nerves also show numerous swellings and irregularities.

The foregoing appearances are indicative of acute degenerative processes. The large cells of the ganglia show no good evidence of fatty degeneration.

Sections of the thoracic and lumbar portions of the spinal cord and of the cerebral cortex were stained according to the method of Nissl, slightly modified. This method is chiefly designed to show the condition of certain granulations in the body of the large nerve cells, changes in the size and appearance of which are signs of degeneration. The microscopical examination showed a doubtful faintness in the staining and definiteness of the granulations of the large cells of the cortex cerebri, while the nerve cells of the spinal cord seemed quite normal.

It cannot be said that any well-marked pathological changes were found in the nerve cells in any of the sections.

The microscopical examination of portions of the liver and spleen revealed nothing remarkable.

A section of the kidney showed cloudy swelling of the epithelium of the tubules; and a section of a lymphatic gland showed hyperemia.

The efficacy of antitoxin in the treatment of tetanus can only be decided by the comparison of a very large number of cases.

The mortality of the disease, as treated by the older methods, has been roughly estimated at about 80 per cent. for the acute, 40 per cent. for the milder, and 60 per cent. for all cases (Lambert).

Lambert gives the mortality in 114 cases treated

with antitoxin as 46 percent. Of these, 47 were acute cases with a mortality of 74.5 percent., and 61 chronic, with a mortality of 16.4 percent.

If cases dying of intercurrent disease, and all dying within twenty-four hours after treatment was begun, are excluded, we have in the acute cases 31 cases with 12 recoveries, or 61.3 percent., and in the chronic cases 40 cases with 38 recoveries, or 5 percent. The total mortality on this basis of cases treated by antitoxin becomes 29.57 percent.

With regard to the efficacy of the antitoxin treatment in Case I narrated in this paper, we cannot deny the possibility that the case would have recovered under the older methods of treatment, as it belongs on the whole to the milder type of cases, and treatment was not begun until the tenth day. The progress of the second case was so rapid that it is doubtful if any treatment would affect it. The first case received 470 c. c. of antitoxin during fourteen days, the largest amount given at any one dose being 75 c. c. The second case received 280 c. c. during three days, the largest dose given at any time being 100 c. c. The initial dose in Case I was 20 c. c., and in Case II 40 c. c.

In view of Dr. Smith's statement on p. 295 of the JOURNAL, the smallest effective dose can hardly be less than 100 c. c., even of the strongest antitoxic serum, so that the initial dose in cases treated in the future should be larger, unless some method is devised of obtaining a serum of greater antitoxic strength, which in the present state of our knowledge seems improbable.

A CASE OF SEPTICEMIA (GONOTOXEMIA?) TREATED WITH THE STREPTOCOCCUS AN- TITOXIN: RECOVERY.¹

BY AGNES C. VIETOR, M.D., BOSTON, MASS.,
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in Physical Diagnosis and Surgery, Woman's Medical College
of the New York Infirmary, etc.*

THE case which I report is one observed in the service of Dr. Mary A. Smith, at the New England Hospital. A woman; twenty-seven years of age; married five years; mother of three children, youngest sixteen months old; no abortions. Family history, general personal history and menstrual history—all negative. Her child-bearing history, also, is negative till the birth of her last baby, sixteen months ago; since that time she has had a dull pain across the lower abdomen whenever she lay down; she felt comfortable only when lying in the prone position. Since June of the present year, she has been exposed to the gonorrheal infection, for at that time her husband had an acute attack of gonorrhea.

Aside from the above, her pathological history is uneventful till the menstrual period of October 8th, last. This set in as usual, but instead of ceasing on the fifth or sixth day, the flow continued for ten days. On the tenth day she did some washing, work to which she was not accustomed; that night she went to bed with severe abdominal pain. The flow ceased for three days and then returned for fifteen days longer. She remained confined to her bed, suffering the abdominal pain at intervals and steadily growing weaker and more emaciated. She had night-sweats from an early period of her illness. There was constipation,

with much straining; urination was painful, delayed and often involuntary.

November 4th, she was admitted to the New England Hospital. She was brought in on a cot, and was seen to be a slender, dark-haired woman, of medium height. Her face was thin and of a sallow, cachectic hue; her cheeks and temples were hollow and her eyes set far back in the orbits. In general, she presented an appearance of marked emaciation and exhaustion.

Physical examination showed: Temperature, 99.4° F; pulse, 92; respiration, 20. Tongue coated yellowish-white and rather dry. Lungs, heart and arterial walls negative; pulse weak, irregular and of very low tension. Liver, spleen and kidneys negative. There was a marked sinking in of the abdominal wall from the ensiform to the umbilicus, and a most pronounced pulsation of the abdominal aorta. Tenderness over the whole lower abdomen. Pelvic examination showed marked laceration of perineum and cervix; uterus retroflexed, rather large and hard; in the region of the appendages, on both sides, were irregular, tender masses, that on the left side being the larger. Urine loaded with amorphous urates, specific gravity 1.030; otherwise negative.

A diagnosis of pus tubes was made, and removal advised.

November 6th, after curettement of the uterus, celiotomy was performed and the appendages removed. All the pelvic organs were matted together with firm, vascular adhesions. The tubes were not large, but both fimbriated extremities were open and the slightest handling caused pus to exude from these orifices. Every effort was made to prevent contamination of the neighboring regions and of the abdominal wound. Dr. Harriet E. Lothrop reported both tubes convoluted and moderately distended with thick yellowish-white pus. Both ovaries were highly injected and contained cyst-like foci of pus; and a collection of pus, the size of a hazel-nut, enclosed in a pyogenic membrane, was embedded in the thickened left broad ligament between the ovary and the distal end of the tube. The pus contained gonococci; no other micro-organisms were discovered. The curettings showed an endometritis, with glandular hyperplasia.

The morning of the operation the patient's pulse was alarming; it became weaker and more irregular, and suddenly rose to 160. After the operation, for about twelve hours, it grew slower, ranging from 72 to 80, and improving in quality.

The morning of the second day, however, the temperature, which had descended to 97.2°, began to rise, and in a few hours the pulse also began to climb upward, and to grow very poor in quality. At the same time, the constitutional depression began to be pronounced. The patient was sleepless, restless, fretful and moaning, complaining of thirst, of heat and of pain in the abdomen, which became distended and tender to touch. The pulse was so bad that stimulation with strychnine and whiskey had to be pushed vigorously.

The third day the patient began to vomit, rejecting everything. The rectum also rejected everything, so that nutrient enemata could not be retained. Respiration rose to 32; the temperature became irregularly remittent; the pulse assumed the same type.

The fourth day the pulse grew weaker till it became a mere thread and uncountable at the wrist; at the apex, the heart registered 180. Under large doses of

¹ Read before the Clinical Section of the Suffolk District Medical Society, December 15, 1897.

strychnine, hypodermatically, it rallied somewhat. A condition of profound septicemia developed, and steadily grew more marked. The blood was examined for micro-organisms but none were found.

The morning of the fifth day nine cubic centimetres of streptococcus antitoxin were injected between the shoulders. No appreciable effect followed, for while the temperature fell from 101° to 99.4° , the remission of the previous day had been from 102.2° to 100° ; the pulse varied from 112 to 136, being 132 at 9 P. M. At this time the abdominal wound was found to be discharging pus from its lower portion. The edges of the wound were puffy, reddened and succulent. An examination of this pus did not show any micro-organisms; 8.5 c. c. of antitoxin were given.

No effect from the antitoxin was apparent. The temperature, next day, was not above 101.6° , but the pulse rose to 150 and was very weak and irregular. The patient continued restless and crying out with pain in the abdomen, or lay in a semi-stupor, with the eyeballs rotated upward and the eyelids open. Prostration was profound; vomiting of green or brown fluid; nothing retained but occasionally a little champagne or albumin water. Urination largely involuntary. Emaciation was increasing. Pressure sores began to form on right ear and left shoulder. Tongue dry and white. Lips dry, brown and peeling. Hands desquamating in flakes. In the evening eight cubic centimetres of antitoxin were given.

The next morning the pulse dropped suddenly from 128 to 100; the temperature slowly fell to 100.4° , and there set in a decided improvement in the patient's general condition, especially in her appearance. Vomiting decreased; pain lessened; she slept at intervals; the expression of her face and eyes became less stupid. During the day subcutaneous infusion of 720 c. c. of normal salt solution was followed by diminished thirst, temporary increase in volume and steadiness of pulse and diminished nervousness and restlessness. However, the temperature and pulse again mounted, so that at 9 P. M. the former was 101.8° and the latter 140; 7.5 c. c. of antitoxin were then given.

The next morning there was again the sudden dropping of pulse and temperature, both registering 100. Diarrhea had set in a little before midnight; stools very fluid, dark green or brown, offensive, painless, often involuntary; there were present marked borborygmi and visible peristalsis. The abdomen was still distended. The stomach showed an inclination to retain food, but it was so distended, bulging up above the level of the ensiform, that it was gently washed out with a weak alkaline solution, after which, small quantities of liquids were retained. Left knee and shoulder abraded from friction of the bedclothes. Pains and lameness all over. Subcutaneous infusion of 960 c. c. of normal salt solution had little effect. Wound sloughy, grayish, discharging thick, creamy pus and burrowing downward and inward. Edema of skin and subcutaneous tissue for about an inch all around the wound. Towards night the temperature and pulse mounted to 102.2° and 140. No antitoxin was given.

Next day there was very little change in pulse and temperature; diarrhea continued; vomiting returned somewhat. Prostration seemed more marked; skin cold and clammy; pulse weak and irregular, 130 to 136; temperature in the neighborhood of 102° . Wound was nine centimetres long and six and a half

centimetres wide; the median portions of the recti muscles were bare and, in the lower half of the wound, separated so that the transversalis fascia was visible. The floor of the wound extended downward and inward along this fascia for about two and a half centimetres. In the evening eight cubic centimetres of antitoxin were given.

Next morning there was again the sudden dropping of temperature and pulse, the temperature reaching 100.2° and pulse 98. But, again, both soon began to rise, temperature to 103° and pulse to 140, and, on the whole, both remained higher than on any previous day. No antitoxin was given.

The eleventh day brought no special change. The wound ceased sloughing and burrowing, but the surface was smooth and glazed. The patient had profuse sweats. In the morning nine cubic centimetres of antitoxin were given, and in the evening seven and a half cubic centimetres more. This time there was no sudden dropping of pulse and temperature. The temperature fell gradually during the twenty-four hours to the neighborhood of 100° , but the pulse remained in the neighborhood of 130. But there was a marked change in the general condition. The patient had a very comfortable day, sleeping a great deal. Appetite improved; tongue began to clean; the wound began to granulate.

This improvement continued next day, although the temperature reached 102° and the pulse 130. A carbuncle appeared on the right hip, behind and above the level of the great trochanter. It was incised and drained and was found to extend down to the deep fascia. Five days later a sinus was discovered opening into the posterior wall of the carbuncle. It extended upward and backward for about seven and a half centimetres, and its floor also was formed by the deep fascia. Sixteen cubic centimetres of antitoxin were given in the evening.

The following morning the temperature dropped suddenly to 100° but the pulse did not descend below 120, and gradually ran up to 140, the morning of the fifteenth day. The evening of this day 20 c. c. of antitoxin were given. There was no sudden dropping this time, but the temperature gradually fell to 99.8° and the pulse to 120; the latter soon rose to 144.

After this the history of the patient becomes somewhat monotonous. Although the diarrhea lasted a week longer, she continued to gain in general condition, and her pulse and temperature passed into a neutral zone, neither very high nor yet normal.

Now, in the sixth week of her illness, the temperature frequently touches the normal limits, but the pulse still runs from 100 to 120, and remains rather weak and often irregular. She is convalescing well, but she gains in weight very slowly; her skin continues to have a grayish-yellow cachectic hue; the carbuncle and sinus are slowly closing; pressure sores are healing very gradually. The abdominal wound has granulated in, but the skin and subcutaneous tissue are still gaping. About ten days ago the edges were loosened and freshened and drawn together and sutured, but the retractility of the tissues is so extraordinary that they pulled out from the sutures. The gap is slowly contracting. In the pelvis there appears to be a slight exudation in the region of the stump, on the right side, but it is not marked. It has not seemed to change since first noted towards the end of the first week.

Constantly, throughout the progress of the case, was

scrutiny made of the various viscera, including the kidneys, but nothing indicating any organic lesion has ever been made out. Even to-day this heart that has given me so much anxiety shows only a shortened and high-pitched first sound and a little enlargement of the left ventricle.

The diagnosis of an intoxication—a toxemia—seems inevitable. Bearing in mind the history of the case, the direct history of the infectiousness of the husband, the pathological findings and the peculiar course of the disease, it is impossible to avoid the suggestion that we have been dealing with a *gonotoxemia*—if I may be allowed the word.

De Christmas,² in a report of his researches on the gonococcus toxin and antitoxin, says that while still unable to produce gonorrhea, as ordinarily understood, in any of the lower animals, yet the introduction of the gonotoxin produces certain definite effects, whether this gonotoxin be contained in the bodies of living or dead germs, in the filtered culture medium, or in the form of a glycerine extract of the precipitated toxin.

To be brief, he describes these effects as being constitutional or constitutional and local, according as the toxin is injected directly into the blood, or as it is applied locally to one of the tissues, as the subcutaneous tissue, the serous membranes, the anterior chamber of the eye, etc.

The constitutional symptoms are those of an intoxication, the gravity of which is proportionate to the dose of toxin; it is manifested by fever (by subnormal temperature, if the dose is excessive and quickly fatal), a rapid and pronounced loss of weight, complete anorexia, profuse diarrhea and the development of a state of cachexia and emaciation. The animal dies speedily or recovers only very slowly, and often dies in a state of gradual decline, the autopsy showing no apparent organic lesion, the principal manifestation being a pronounced anemia with considerable diminution in the number of red globules. The immediate cause of death appears to be a pulmonary hyperemia.

The local reaction to the toxin is a pronounced inflammation with the formation of thick, yellow pus. Pus and exudate are sterile. These lesions have no tendency to spread; they disappear slowly and, when in the subcutaneous tissue, are characterized by a cicatricial retraction of the integument which is very slow in disappearing and which remains tender a long time.

While it is true that the effects of toxins on man and on the lower animals are not exactly parallel, nevertheless, they are akin, and the analogy between the condition of this patient and the results of De Christmas's experiments is striking.

As for the streptococcus antitoxin—it was used, first, because the streptococcus seems to be ubiquitous, and I did not feel able absolutely to exclude the possibility of its presence here; but, also, it was used because I have been much impressed with the experiments of Roux and Omllette, showing that "the serum of animals that have been immunized against certain viruses or poisons may be able to give immunity against certain other viruses or poisons." Thus, Roux has shown that tetanus antitoxic serum is antitoxic also to snake venom; and that by rendering a rabbit refractory to rabies, it becomes immune against snake bites.

In the absence of a gonococcus antitoxin, the strep-

tococcus antitoxin seemed the most available. Its effect on the pulse and temperature has been shown. Its effect on the general condition and appearance of the patient was more remarkable, and more impressive to those who saw it because it was so plainly evident and more permanent. It recalled the assertion of Metchnikoff that we have to do with not "antitoxins" but "stimulins," of which several may produce the same effect upon living cells.

NOTE.—Acting on De Christmas's finding that in animals dying from gonotoxemia, the principal manifestation was a pronounced anemia with considerable diminution in the number of red globules, I began, December 18th (a few days after making the above report), giving inhalations of oxygen to this patient.

During the first administration, of ten minutes' duration, which I gave myself, I was surprised to note that the pulse fell from 116 to 104; during the night following this, it registered 96, falling below 100 for the first time since under the administration of antitoxin, on November 15th. She was ordered oxygen for ten minutes' duration, four times a day.

In a few days, a change was noted in the skin, the grayish, cachectic hue markedly clearing up. The pulse maintained a lower range, generally between 90 and 100. Its irregularity, however, continued. The patient convalesced slowly and left the hospital January 25, 1898.

Clinical Department.

VELANDER'S NEW METHOD OF ADMINISTERING UNGUENTUM HYDRARGYRI.¹

BY RICHARD HOGNER, M.D.

I TAKE the liberty to present a very interesting case—a pillow-case—which I think will be in the future a valuable instrumental means of administering unguentum hydrargyri.

Dr. Edv. Velander, professor in venereal diseases in Stockholm, Sweden, and head doctor at the very great St. Göran's Hospital for venereal diseases in that city, has recently devised this pillow-case for the above named purpose.

My own experience in its use is limited to two patients. However, I found it so practical, effective, convenient and clean, that I do not hesitate to communicate the facts to you already.

Professor Velander is well known among the profession for the work he has done in this specialty of our art. The Velander method of curing soft chancre by heat is widely spread and adopted with or without modifications. His investigations some years ago on the absorption of mercury in unguentum hydrargyri led him to the conclusion that it is mostly, if not entirely, absorbed by inhalation of the evaporated mercury, and induced him to use in the administration of this drug a combined method of rubbing in the ointment and spreading it out on different parts of the body, and later the simple method of only spreading it over the skin. These facts are now well known.

This year he has finally given up spreading the ointment over the skin and relies entirely on the application of the ointment to the inner surface of a pillow-case, which is to be fastened about the patient's body, from the neck, downward. This method is now so generally accepted in Sweden that it is there almost the only one at present used in the general administration of mercury externally.

The pillow-case is made of cheap cotton cloth. It measures 88 by 54 centimetres (15 by 21 inches), and

² De Christmas: Contribution à l'Étude du Gonocoque et de sa Toxine, Ann. de l'Institut Pasteur, Paris, August, 1897, p. 609.

¹ Read before the Clinical Section of the Suffolk District Medical Society, December 15, 1897.

has ribbons for its suspension over the chest. The ribbons are placed two laterally at each edge, 12 centimetres ($4\frac{1}{2}$ inches) above the lower corners, and four upward, namely, two opposite each other at the upper edges, 6 centimetres ($2\frac{1}{2}$ inches) from the corners. The ribbons are about 64 by 1.5 centimetres (25 by 0.5 inches).

The pillow-case is suspended from the shoulders with the external part of its medicated side toward the body—that is, under the clothing—and is held in position by the ribbons which are tied around the waist and over the shoulders down to the waist ribbons. It is worn consecutively for ten days, alternating every twenty-four hours, from the front of the chest to the back, fresh ointment being supplied every night without wiping off the old. After ten days a new pillow-case is applied.

Baths are to be taken once or twice a week, the skin under the pillow-case being washed every night.

Dr. Velander uses, besides this ointment treatment, all necessary local treatment, etc., and with the ordinary attention to the month, he has not met more stomatitis than usual.

The quantity of ointment used is six grammes ($1\frac{1}{2}$ drachms), of a strength of two hydrargyrum to four *constituens*; and, as before said, it is spread every night over the same half of one of the insides of the pillow-slip. The best way to spread the ointment over the inside of the pillow-case is to spread it out over the outside and afterward turn the pillow-case outside in.

This simple treatment is very convenient for the patient, as he can go about comfortably as usual, is not bothered with any painstaking rubbing, keeps himself easily clean, and at the same time can easily conceal his treatment.

This pillow-case method is also very satisfactory for the doctor, as the mercury seems thus to be absorbed quicker, with less irritation.

Medical Progress.

REPORT ON PROGRESS IN GYNECOLOGY.

BY EDWARD REYNOLDS, M.D.

RETROVERSION AND RETROFLEXION OF THE UTERUS.

S. Pozzi¹ considers that retroversion and retroflexion of the uterus are not distinct morbid entities. They occur under two conditions: (1) relaxation of the ligaments or flexibility of the cervix, without adhesions, with or without lesions of the appendages, that is, a movable retrodeviation; (2) posterior adhesions, especially around the appendages, after a perimetritis or perioöphoro salpingitis, that is, a fixed or adherent retrodeviation. Movable retrodeviations without lesions of the appendages might better be termed excessive mobility of a uterus which has lost its fixity. The principal phenomena of a nervous and reflex character which they cause are independent of the direction of the deviation and are due to the mobility. All surgical treatment which allows subsequent development of a pregnant uterus can have only temporary results, as constant traction causes relaxation of the artificial attachment, and all which gives durable results interferes with subsequent gestations. The treatment

should be directed to the cure of the metritis or inflammation of the appendages, restoration of the lacerated or relaxed perineum by a plastic operation, and the use of a pessary which fixes the cervix by distending the posterior cul-de-sac, and an abdominal belt to regulate intra-abdominal pressure. In adherent retrodeviations the adhesions may be broken up by massage or the sound, but this is dangerous. The principal morbid element is not the deviation or adhesions, but the condition of the uterus, tube or ovary, and it is to the latter that treatment should be directed. If the appendages are chiefly diseased with metritis, laparotomy is usually indicated, breaking up adhesions, and performing ignipuncture and resection of partially diseased ovaries, or castration if the appendages are gravely involved. The uterus will then spontaneously resume its normal position. With bilateral lesions of the appendages and chronic metritis in women near the menopause or later, vaginal hysterectomy may be preferable.

Retroversion and retroflexion of the uterus were discussed at the German Gynecological Congress in Leipzig.²

B. S. SCHULTZE. *Etiology.*—(1) Relaxation of the uterine ligaments caused by pregnancy and puerperium; resorption proceeding from parametritis posterior; habitual constipation; continued recumbent position. (2) Fixation of cervix anteriorly through spontaneous and artificial scars (parametritis anterior, lacerations of cervix, dissection of cervix, fistula). (3) Abnormal shortness of vagina, especially of anterior wall (puerile arrest of development, senile atrophy). (4) Habitual fulness of bladder. (5) Gaping vulva, the result of perineal lacerations; the everted anterior vaginal wall drags the cervix forward and the body is displaced backward. (6) Rarer causes are abnormal length of cervix, tumors of anterior uterine or cervical wall, incomplete descent of the ovaries, adhesions of ovaries and tubes posteriorly.

Prophylaxis.—Prevention of over-distention and habitual fulness of bladder, especially in children—school-teachers' attention must be drawn to this; prevention of catarrhal infection; closed undergarments; aseptic menstrual pads; repair of perineal defects; regulation of bowels; attention to obtain involution of puerperal uterus through the giving of ergot.

Bimanual palpation suffices for diagnosis; uterine sound is dangerous and unnecessary. The diagnosis of complications should be made under anesthesia.

Non-operative Treatment.—Bimanual reposition; after this a pessary. Schultze uses celluloid pessaries, which are shaped according to position. In relaxed anterior wall he uses the sledge, otherwise Thomas's, Hodge's, or figure-of-eight pessary. The pessary must not separate the vulva nor project from it. Douches only necessary in first few days after menstruation. In ensuing pregnancy removal in the seventeenth week; if pessary fits well remove only every year. Permanent results are obtained by the daily use of cold enemata, which should also be taken after every defecation. During menstruation ergot is advised.

Frequent Complications.—Subinvolution, metritis, endometritis, oöphoritis, in recent cases are best treated by reposition, while in old cases dilatation, irrigation, and curettement improve the tone of the uterus and its ligaments. If reposition is difficult, recto-vagino-abdominal palpation under anesthesia; after this pes-

¹ Rev. de Gyn., May and June, 1897.

² Cent. für Gyn., No. 25.

sary or firm tamponing of vagina. Adhesions of uterus or adnexa may interfere with retaining the uterus in proper position. Massage, with simultaneous pessary, tampon, bath and irrigation treatment is advised. When perineoplasty is indicated on account of gaping vulva the operation should be preceded, at the same sitting, by vagino- or vesico-fixation or Alexander's operation.

OLSHAUSEN. *Symptomatology.*—If retroflexo-version is complicated by tumors of the adnexa the symptoms arise largely from this complication. Uncomplicated cases cause no disagreeable symptoms in about one-half the cases. Besides local symptoms, retroflexion may cause general symptoms which are largely of nervous origin. In old cases we have no true metrorrhagia, but menstruation is more frequent and the flow is apt to be freer. Atypical and continual flowing points in old cases to some complication, usually endometritis fungosa. Although sterility is rare, retroflexion may be its cause, but some disease of the adnexa or hyperplasia of the uterus is generally accountable. Retroflexion also causes abortion, but in most cases the gravid uterus resumes the normal position spontaneously. Dysmenorrhea is not a prominent symptom of retroflexion; it is generally due to the accompanying endometritis.

Treatment.—Try first pessary treatment; if not successful and symptoms are distressing, operative treatment. Women approaching the menopause should undergo operation; disagreeable symptoms will soon cease. Complications of adnexa should be treated separately. Alexander's operation is the best, but is unsuitable in fixed retroflexion. In fixed retroflexion ventrofixation by the anterior uterine wall or the broad ligaments is advised. Silk-worm-gut is the best fixation material; silk ligatures are not safe on account of liability to infection travelling along the sutures. Vagino-fixation is practicable in mobile retroflexion. Complications of labor may be avoided by fixing the lower portion of the uterus only.

WINTER. Too much attention has been paid to methods of treatment, while the observation of symptoms has been neglected. Winter examined 303 women who came under observation for other causes; among these he found 36 cases of retroflexion; 11 of these had no symptoms, while 25 had symptoms; of these, 21 cases had complications. Recent retroflexion causes no disagreeable symptoms; if these are present they are due to complications, which, however, are not caused by the displacement. Flooding is always a consequence of diseased adnexa, except in puerperal cases.

DÜHRSEN observed six recurrences among 281 cases in intra-peritoneal vagino-fixation. He never saw a difficult labor after his operation. He does not perform the operation as frequently as formerly; he operates in 30 to 50 per cent. of cases.

BUMM believes in vagino-fixation, but fixes only the lower half of the uterus. If fixation is too high, subsequent labor is difficult, while too low fixation gives no permanent results.

THEILHABER considers the reposition of secondary importance; the treatment of symptoms is advised.

WERTH considers Alexander's operation the most ideal operative method.

WERTHEIM performed his method of vaginal shortening of the round ligaments in 14 cases; the mechanical result was excellent; recurrence in one case.

VEIT agrees with Schultze that retroflexion fre-

quently antedates the puerperium. Puberty is the beginning, but symptoms do not present themselves until complications have arisen. He looks on vagino-fixation with suspicion, and performs only Alexander's operation.

FEHLING has a record of 55 vagino-fixations with 10 pregnancies; no serious birth complications.

CACHEXIA OF CANCER.

W. Roger Williams* says that as the cancerous cachexia is less frequently caused by sarcomata than by carcinomata, and is never due to non-malignant tumors, it cannot be attributed to mere abstraction of nutritive materials from the blood; nor can it be ascribed to septicemia, as it appears to be independent of the external lesions which usually accompany that condition, as there is usually no pyrexia and no signs of septicemia are found post-mortem. Cachetic symptoms never precede the outbreak of the primary disease, from which it may be inferred that they are a result of its local progress. They may best be interpreted as the consequence of a general toxemia, the explanation of which must be sought in the remarkable proneness of the constituent cells of cancers to undergo degenerative changes, which are often so extreme as to lead to their complete destruction by disintegration. When such excrementitious products find their way—by nutritive absorption or otherwise—into the general circulation, in quantities too great to be quickly eliminated and destroyed, they poison the fluids of the body; and so, by a kind of auto-intoxication, similar to that by which the system is infected from an inflammatory focus, they originate the phenomena of the cancerous cachexia. Hence these symptoms are much more frequently met with in association with cancers whose cells are specially prone to degenerative disintegration (for example, the breast) than with those whose cellular elements are more stable (for example, the lip). It seems probable that the excrementitious products thus produced contain certain toxic albuminoids analogous to the virulent substances secreted by microbes. These agencies cause marked qualitative and quantitative blood changes. Its total quantity is said to be diminished; its specific gravity is said to be increased; albumin and inorganic salts in the serum are less than normal. Leucocytosis is the most marked change, the white corpuscles being increased from 6,000 per cubic centimetre to 17,600 in certain cases of cancer of the stomach, to 11,400 in breast cancer, and to 7,800 in uterine cancer. Similar conditions have been demonstrated in connection with sarcomatous neoplasms; hence it may be concluded that every tumor unattended by inflammation or suppuration, causing marked leucocytosis, is due to malignant disease. It must be remembered, however, that the leucocytes are increased after meals, after hemorrhage, in pregnancy, in the newly born and dying and in inflammatory and febrile affections. The red corpuscles and hemoglobin are greatly diminished. Pallor of the skin is marked, the straw-colored tint probably being due to altered hemoglobin taken up by the plasma of the blood; emaciation, gastro-intestinal disturbances, and quasi-rheumatic pains in parts of the body remote from the primary seat of the disease occur, and peripheral neuritis has sometimes been found. Insanity has occasionally been noted. The alterations in the blood are usually accompanied by widespread fatty degeneration, and the

* Edinburgh Medical Journal, June, 1897.

anorexia and constipation are probably due to such changes in the liver and gastro-intestinal mucosa. The general malnutrition causes changes in the bones, aside from secondary cancerous deposits, the ribs, sternum, femur, cranial bones, humerus and vertebrae being most frequently affected. They become lighter and more fragile, probably from defective deposition of new bone to replace that absorbed. It seems probable that the affection is connected with alterations in the blood-forming properties of the red marrow; in fact, the bones most frequently so affected are those in which hematopoietic functions are normally most active. Amyloid degeneration is rarely associated with cancer. In 44 breast-cancer autopsies the writer did not meet with it, and found it in only four of his 78 necropsies upon cases of uterine cancer. After ulceration the symptoms of septic infection may be added to those of cancerous cachexia. Death occurred from asthenia in 64 of the author's 90 cases of cancer of the uterus which ran their natural course, and in 24 out of 40 fatal cases of cancer of the breast.

NEW OPERATION FOR CYSTOCELE.

Marsi⁴ describes the following operation: A longitudinal incision is carried through the mucous and sub-mucous layers of the anterior vaginal wall, from the anterior fornix to the lower end of the urethra. At each end of this incision a small transverse one is made on either side, and the two lateral flaps thus marked out are dissected off. Interrupted sutures of catgut are passed through the base of the right-hand flap, beneath the median raw surface, emerging at the base of the opposite flap. The flaps are then replaced over the first line of sutures, and their opposite edges are united by a continuous suture of catgut. The result is not only the removal of redundant tissue, but the formation of a new supporting column in the median line of the anterior vaginal wall.

PREVENTION OF IMPREGNATION BY DIVISION OF THE TUBE.

Kehrer⁵ insists upon the importance of preventing patients with certain chronic and wasting diseases from becoming pregnant. This may also be desirable in cases of extreme pelvic contraction. It would seem more rational under these conditions to render such women sterile than to resort to the inevitable alternative of artificial abortion after pregnancy has occurred. None of the ordinary preventives is absolutely certain, at least in the hands of the laity.

Since removal of the adnexa is followed by climacteric disturbances, the writer suggests that a woman may be rendered sterile by simply dividing and ligating the tubes, as is practised by some operators during the performance of Cæsarean section. From experiments on rabbits he found that this procedure was not followed by either hydro- or pyo-salpinx, as might have been inferred. He accordingly applied this method to the human subject in the following case: A woman, aged twenty-seven years, had borne six children, two of whom died soon after birth, and the rest were either idiots or malformed. A seventh pregnancy was terminated artificially at the fourth month on account of the wretched condition of the mother, which had grown steadily worse after every labor. After mature consideration, and after the failure of

the usual methods of preventing conception, it was decided to accomplish this result by surgical means. The usual anterior vaginal incision was made, as in vagino-fixation, the fundus uteri was drawn down into the wound, and each tube was ligated in two places near the isthmus, and divided between the ligatures, care being taken not to include the vessels. The uterus was sutured in a position of ante-flexion. Convalescence was normal, and the succeeding menstruation appeared at the usual time.

The advantages claimed for this method are simplicity and the absence of subsequent disturbances, especially atrophy of the genitals and the extinction of sexual desire. Should the adnexa be diseased, they are, of course, removed. The writer adds that this operation should only be performed as a last resort, at the request of the family physician, as well as of the husband and wife. In order to avoid subsequent complications, the written consent of the parties interested should be obtained. The criticism might be offered, he concludes naively, that total abstinence would accomplish the same result, but experience shows that it is practically impossible to maintain this restriction.

STERILIZATION BY SECTION OF THE TUBES.

Beuttner⁶ suggests the following method: The abdomen is opened by a transverse incision just above the symphysis. The Fallopian tubes are divided as far as possible from the uterus, and the four ends are closed with separate sutures, including the muscle and peritoneum. The divided ends are reunited by circular serous sutures (as in circular enteroraphy), so that a double septum is formed while the tube retains its normal position.

Fritsch⁷ thinks that in some cases it may be desirable to prevent future conception after performing vagino-fixation in the case of a woman who already has children, considering the risks of pregnancy. Kehrer's method then offers advantages. The writer reports a case in which he first resected portions of both tubes and then performed vagino-fixation. Ligation is not sufficient, as he once tied both tubes with silk, yet the patient had a child three years later.

THE DANGER OF PREGNANCY AFTER OVIOTOMY.

Laroyenne⁸ reports the following interesting case: An easy ovariectomy was performed in the case of a young multipara. She menstruated only once after the operation. During the second month of pregnancy she was suddenly seized with severe abdominal pains, accompanied with dyspnea and vomiting. Five days later she was admitted to the hospital in a moribund condition, and died the following day. At the autopsy the peritoneal cavity was found to be filled with coagula. The hemorrhage had come from the stump, the ligature having slipped in consequence of traction due to the growing uterus.

EXTIRPATION OF THE OVARIES AS A CURE FOR CANCER.

W. Roger Williams⁹ says that in his work on "Ovarian Tumors" Spencer Wells gives a table showing the subsequent history of all who recovered after completed ovariectomy. One hundred and seventeen had since died, the cause of death unknown in 29. Of

⁴ Centralblatt für Gynäkologie, No. 38, 1897.

⁵ Loc. cit., No. 31, 1897.

⁶ Centralblatt für Gynäkologie, 1897, No. 40.

⁷ Loc. cit.

⁸ Revue Internat. de Med. et de Chirurgie, No. 1, 1897.

⁹ British Medical Journal, June 12, 1897.

the remaining 88, 82 had succumbed to cancer — that is, 1 in 2.75. During the same period the cancer mortality in the general population, among women of about the same age, was 1 in 15. Thus the cancer mortality was nearly 5½ times greater for those whose ovaries had been extirpated than for those who had undergone no such operation. Of these 82 cancer cases, in 19 the seat of the disease is not stated, in 8 it was peritoneal, in 8 uterine, in 2 in the pedicle, in 2 rectal, and in 1 each in the lung, liver and kidney. The date after ovariectomy at which death from cancer supervened is stated in 29 cases; 10 died in the first year, 10 in the second, 4 in the third, and 5 at later periods. In none of the foregoing cases was there any reason to suspect, at the time of ovariectomy, that malignant disease was then present. In 6 of the 32 operations it is distinctly stated that both ovaries were removed. Pfannenstiel concludes that the cancerous disease arises from epithelial elements detached from the ovarian cystoma at the time of operation, which suddenly become grafted in a new position and there take on such luxuriance of growth as to eventuate in cancer. In these cases the removal of the ovaries, instead of checking the tendency to cancer, had the contrary result.

MICROSCOPIC EXAMINATION OF CURETTING.

In considering the clinical value of the microscopic examination of fragments removed by the curette from the uterus, H. C. Coe¹⁰ has been led to believe that in women in the prime of life with irregular hemorrhages, unless the history is pretty strong, we should consider the case as doubtful until the fact of malignancy is proven. The microscope will help rather by negative than by positive information. In women of advanced years, with a fairly well-marked history, especially of obstinate atypical bleeding, when we remove material which has a suspicious appearance we are justified in making a diagnosis of malignancy, even though the microscope throws no positive light upon it. He believes it better to run the risk of removing a few uteri unnecessarily than to delay until the disease becomes inoperable.

THE PRESERVATION OF THE HYMEN.

Kelly writes¹¹ a timely article upon the needlessness of lacerating the hymen for the majority of gynecological ailments. He speaks feelingly of the frequency with which the hymen is utterly disregarded, and attributes a much greater want of thought in this respect to female than to male practitioners. He urges strongly that no one but an acknowledged expert should examine a virgin, basing his opinion upon the fact that delicacy of touch is needed to avoid lacerating the hymen and upon the infrequency of any serious gynecological lesion in this social condition. He then describes at length his method of examining virgins. He urges that while a skilled man can usually make a satisfactory bimanual examination without lacerating the hymen, the latter is so frequently injured by the unskilled that most men should confine themselves to the use of the rectum in virgins. He urges that the patient should always be anesthetized and after anesthesia should be raised into the knee-chest position and held there while air is admitted to the vagina and rectum. If she is then placed upon the back there should

be no obstacle to the performance of a most satisfactory bimanual examination through the rectum. He further goes on to describe a speculum which he has devised for use in the knee-chest position under anesthesia in virgins. This speculum is closely similar to the well-known Kelly vesical specula, but is fitted with a bevelled end in order to avoid the necessity of using an obturator.

[That this work could be done equally well by the larger sizes of the vesical specula is perfectly apparent. They may indeed be used very successfully in the Sims position. — E. R.]

Reports of Societies.

CLINICAL SECTION OF THE SUFFOLK DISTRICT MEDICAL SOCIETY.

E. W. TAYLOR, M.D., SECRETARY.

REGULAR Meeting, Wednesday, December 15, 1897, DR. W. F. WHITNEY in the chair.

DR. RICHARD HOGNER read a paper on

PROFESSOR VELANDER'S NEW METHOD OF ADMINISTERING UNGUENTUM HYDRARGYRI.¹

DR. AGNES C. VIETOR read a paper on

A CASE OF SEPTICEMIA TREATED WITH THE STREPTOCOCCUS ANTITOXIN; RECOVERY.²

DR. THEOBALD SMITH read a paper on

THE TOXIN AND ANTITOXIN OF TETANUS.³

DR. LUND read a paper on

TWO CASES OF TETANUS TREATED BY ANTITOXIN.⁴

DR. WITHINGTON: My experience has been very limited. I wish to express my appreciation of the remarks of Dr. Smith and my interest in Dr. Lund's cases. According to all observers the distribution of the bacillus of tetanus seems to be very wide, and it is remarkable that the disease is so rare when the earth we tread upon and handle is so full of the germs of the disease as it appears to be. I noticed that one observer in examining forty-three specimens of dirt picked up at random in almost all parts of the world was able to demonstrate the existence of the tetanus bacillus in twenty-seven. One of the writers in the "Contemporary Science Series," Dr. Woodhead, speaks of the virus which is used in certain of the poisoned weapons in the Solomon, New Hebrides and other islands to the east of Australia, and says that the active principle which causes the death from the use of these weapons is the bacillus or toxin of tetanus, and he gives an account of the way in which those weapons are prepared. The darts have a hard-wood head into the end of which is fixed a small piece of bone made so slender that it is sure to break when it strikes the body, leaving a portion of the bone in the body. These weapons are charged by being first smeared with the gum of some resinous tree and then rubbed with a portion of the soil taken from some of the mangrove swamps and dried a little while. The effect of such wounds is almost universally fatal, the symptoms being those of tetanus. The dirt being the

¹ See page 296 of the Journal.

² See page 297 of the Journal.

³ See page 292 of the Journal.

⁴ See page 295 of the Journal.

¹⁰ American Gynecological Journal, July, 1897.

¹¹ American Journal of Obstetrics, January, 1898.

ordinary abiding-place of these germs, it is easy to see how the case of which Dr. Lund spoke might become infected. It is not so easy to see how some other cases of infection occur, as, for example, after certain operations. I think that the operation for hemorrhoids has not infrequently been followed by tetanus; some uterine operations certainly have been.

The only distinct case which I recall was one in which tetanus followed abortion. That is a pretty rare occurrence. It is known to obstetrical writers, and in Hirst's "System of Obstetrics" there are some hundred cases noted as following either parturition or abortion, and the mortality is said to be higher in cases of that sort than in any other sort of infection. One writer says that recovery from tetanus following abortion is almost unknown. That statement is the chief warrant for my speaking of this case which followed abortion.

The circumstances were briefly that a woman was married on the first of July, menstruated the last of June, aborted the 25th day of August without medical attendance apparently, and was strenuous in her assertion that there was no means used to bring on the abortion. Three days later she was seen by a physician on account of fever and some signs of sepsis, and he curetted the uterus. Of course, it is possible the infection was started by curetting, though it was done by a careful man. She developed symptoms about ten days following the curettage. The symptoms began with trismus, going on to general convulsions; and the picture of the disease, as I recall it, was of a woman lying with considerable rigidity of all the muscles, particularly those of the jaws, arms and legs. Every three or four minutes she was seized with an attack of evident pain and further contraction even of the muscles which were already rigid, and, of course, the contraction centred about the muscles of the face as is usual. The opisthotonos was so marked as to leave several inches between the lumbar spine and the bed. The arms were flexed and the legs more rigidly extended than ever. The duration of such an attack would be one or two minutes. She had the first night, in nine hours, one hundred and twenty of these seizures. The nights following, the number was practically about the same, somewhere about twelve to the hour, about once in five minutes. They were of very great severity and the pain was very intense. The mind was clear, and she was able in the intervals to notice what was going on in the ward. She was treated with what purported to be a solution of tetanus antitoxin. This was two years ago and before any was made here in Massachusetts; and I have a good deal of doubt as to whether the solution was of any particular value, at least in the doses in which it was used. She received altogether about 90 c. c. in three or four daily injections. She did improve, however, and finally completely recovered and went out well.

Of course, it is to be said it was not one of the acute cases—a case on the border-line, however, probably developing in ten days after inoculation, and that is the limit between the acute and subacute cases. The mortality in cases developing within ten days is about 90 per cent. That fact and the fact of the statement that tetanus following abortion is almost always fatal are the only two indications which would lead me to think that the antitoxin injection in her case had anything to do with her recovery. The demonstration seems to be complete that a substance does exist

in the serum of immunized animals in the case of diphtheria, an antitoxin which injected with the poison will protect an animal which otherwise would succumb to the poison. The practical difficulty in getting for therapeutic uses a serum of sufficient strength to accomplish that result when injected for the first time a number of days after the toxin has been received into the body of the patient is very great, and I think we have got to have stronger antitoxins and use them in larger doses than we have been in the habit of doing, both in diphtheria and tetanus as well.

DR. BARNEY: What is the most reliable preparation to be obtained in Boston; and what is its dose?

DR. SMITH: I do not know whether the tetanus antitoxin of Behring is sold in this State or not. I have no doubt that the dried antitoxin is the best preparation to use. I am not sure that it is put into this form by the American manufacturers. I think that the large firm near Frankfurt, Germany, which prepares the antitoxins under Behring's directions makes this serum more for the purpose of determining its efficacy than to make money. The dried product probably represents one hundred times its bulk of blood serum. The four grammes contain five hundred units, this dose to be injected at once and as early as possible.

DR. LUND: Does Dr. Smith know of any cases in which the antitoxin has been furnished to the physicians by the Board of Health?

DR. SMITH: No; except the two cases at the City Hospital, reported to-night.

DR. SMITH: If it could be put into the dried form it would be permanent, because this does not deteriorate. It could be kept in this form at the hospitals to be promptly used when the occasion arose.

DR. LUND: How rapidly does the liquid preparation deteriorate?

DR. SMITH: Very slowly, if kept in a dark place and in the cold. I would like to ask whether Dr. Lund has looked up any cases of tetanus arising from wounds of the head, and whether they are not more serious than when starting from wounds of the extremities?

DR. LUND: I have seen reports of one or two cases of head tetanus that have recovered through antitoxin treatment, and I should judge there is very little difference between those two. I should not wish to state that without examination of the recorded cases.

DR. SMITH: Was not the immediate curetting of the wound which was done in the second case possibly a cause of the rapid absorption of toxin and unfavorable progress which followed? Would not curetting promote absorption of toxin by opening up the lymphatics and causing flooding of the wound with serum for the bacilli to feed on?

DR. VIETOR: I know the New York Pasteur Institute prepares an antitoxin, and I have read reports of its successful use in both human and veterinary cases. I have had no experience myself. In regard to the streptococcus antitoxin which I have been using, I made this observation: I used both European and American preparations, and I noticed that the quantity in the bottles varied very much. I found that scarcely any two measured the same, and I did not find one that measured what it was labelled; so I came to the conclusion that the dose marked on these bottles was a kind of trade-mark. One make was supposed to be sold in 10 c. c. doses, but the amount the bottles actually contained varied, as you may have noticed in my

report to-night, from 7.5 c. c. to 9 c. c.; in no case was it 10. The bottle would easily hold 10 c. c. I used another make, labelled as containing 25 c. c., and the directions were to give one-half the quantity at a dose. I was able to find only 20 c. c. in that bottle. I measured this bottle, and found that when filled to the very brim it would hold 25 c. c. of fluid. That is just a little item in regard to the buying of antitoxin. If you want to give a dose of 10 c. c., you will have to buy more than a 10 c. c. bottle.

I was very much interested in the last case Dr. Lund reported, because I have not had any experience with tetanus except knowing to a certain extent the case of a lady who was a student of mine in New York. I did not know her history. She had two peculiarities, — a pronounced exophthalmos and great nervousness of manner and speech. After she graduated, she went to practice in a suburban town, and I lost sight of her entirely. One day, she came to visit me in a laboratory where I was at work, and said, "I am in town taking treatment." I said, "What is the matter?" She said, "I have tetanus." I thought she looked cheerful for a case of this kind. She said she had been working in the garden five or six days previously, and using a pair of scissors instead of a garden trowel, had cut her fingers; she was very much frightened about herself, but nothing happened until the night before, when she "jerked," and she was afraid she had tetanus. She came to the city for treatment. She went to the Pasteur Institute, where Dr. Gibier did not agree with her diagnosis. However, she insisted upon an injection of tetanus antitoxin and she was no better. She was perfectly well during the day, but at night, as soon as she was dropping to sleep, her arms and legs drew up in flexion so that it awakened her. When awake, the phenomenon stopped. She lingered in New York shopping and going about for a few days when she insisted on a second dose, and went home feeling better. Nothing more was heard of her until about two weeks later, when I heard she was dead. As far as I could get her history, she went home thinking she was better, and a few days after her return had the same symptoms; she was in a state of great fright, and insisted upon going to the local hospital. She was there a certain length of time, and I learned afterward that the hospital authorities had sent to the Pasteur Institute for a dose of tetanus antitoxin, and I heard they administered it to her. At any rate she died; and a communication being made to the hospital authorities to know why she died, they said she died of tetanus.

DR. WHITNEY: Does the inoculation of the cord of the animals poisoned by the toxin ever give rise to symptoms of tetanus in other animals, thus pointing to the presence of a ferment?

DR. SMITH: The theory of the ferment is not generally accepted, in fact, is generally rejected. The inoculation of tissues from animals a certain number of hours, say 17 to 25 after the introduction of large doses of toxin produces no tetanus, according to Marie; but before that a certain amount of tetanus poison is detected in all organs, probably because of the blood present in them, for Marie found that the toxin disappeared from the tissues as soon as it disappeared from the blood.

DR. WHITNEY: The cord contains no more than any other organ?

DR. SMITH: I believe not. The blood is the fluid

which apparently contains most of it. I would like to ask Dr. Lund whether the disturbance of that wound in the second case may not have in some way given the latent tetanus bacillus a better opportunity than if the wound had been left untouched. It seems to me it is a serious question what to do in such a case, whether to disturb the wound or to let it alone.

DR. LUND: I think that question is extremely pertinent, and it would seem plausible that the disturbance of the wound caused by the scraping and mechanical disturbance may have caused absorption. My practice is not to scrape such wounds out, but to excise the wound, make a diamond-shaped incision around the wound and cut it out, and that I think gets it out absolutely clean. This procedure does not introduce serum and dead tissue into the lymphatics and cause more rapid absorption. I think it is a question whether that should not always be the practice to follow. The early date of the beginning of the symptoms, which would be the fourth after the injury, would point to this having been an acute case in any event, so that it is impossible to say whether the absorption would have continued as rapidly without the disturbance of the wound as with. The treatment of all such wounds is to favor drainage, pack with gauze in order that the serum which is formed will be drained away. The tetanus bacillus develops in closed wounds on account of the bacillus being anaërobic, and whatever you do to those wounds, you should open them at any rate and insure the entrance of air, and that was done in this case. I should never question the advisability of exposing the wound and permitting free drainage, but whether the curetting of the tissues is a good thing to do I think is a grave question. I think it is distinctly better to excise a lacerated, dirty wound entirely.

DR. SMITH: Experiments upon animals show that there is no vicarious action between the antitoxins of diphtheria and tetanus. A guinea-pig which has received either diphtheria toxin alone, or a mixture of toxin and antitoxin is subsequently as susceptible to the tetanus toxin as an unused animal of the same weight.

Recent Literature.

Orthopedic Surgery. By JAMES E. MOORE, M.D., Professor of Orthopedic and Clinical Surgery, College of Medicine, University of Minnesota. Philadelphia: W. B. Saunders & Co.

This work has many excellent qualities. It is the most attractively illustrated book on the subject; it is not too large for convenient use, and is written in a clear, agreeable style; and more than all it is both practical and sensible, giving the views of a surgeon who is not carried away by prejudice, the desire for novelty, or fear of the new, and with sufficient experience to enable him to judge of both the defects and excellences of the different methods in use. It may be termed a book which is thoroughly "sound," not tempting the reader with attractive vagaries; it is, however, in no sense a dull or colorless work.

The following passage is worth quotation: "It is only within a few years that this branch [orthopedic surgery] has kept pace with other branches of surgery. Formerly, it was looked upon as an uninviting and

comparatively unimportant part of surgery; uninviting, because as formerly practised the results were anything but satisfactory. Surgeons had not learned to drain joints, to do excisions and arthrectomies. He based his opinions upon false pathology, and was prone to turn the patient over to the physician, who in his turn lost sight of the diseased bone or joint, and many times as his patient was trying to overcome what he was pleased to call scrofula and a strumous diathesis. An early diagnosis was not made, and bone and joint diseases were set down, owing to their late discovery, as local manifestations of a constitutional disease, for which very little could be done. If the medical man thought the patient might be benefited by the application of an apparatus, he considered it beneath his dignity to apply it, and turned his helpless patient over to the tender mercies of an ignorant mechanic, and the result was that much of the mechanical treatment of the disease and deformity was placed in the hands of mechanics and the regular practitioners."

The writer recalls the fact, that it is to the Bellevue Hospital Medical College that we owe the foundation of the first chair in orthopedic surgery. It may be said that this work on orthopedic surgery, without pretending to be exhaustive, deserves a prominent place in the current medical literature.

Cutaneous Medicine: A Systematic Treatise on the Diseases of the Skin. By LOUIS A. DUHRING, M.D. Part II.—Classification, Anæmias, Hyperæmias, Inflammations. Philadelphia: J. B. Lippincott Company. 1898.

The second part of Dr. Duhring's elaborate treatise on skin diseases amply justifies the expectations aroused by the first or introductory portions. In his scheme of classification the author has departed considerably from that adopted by him in his earlier works on cutaneous diseases and has elaborated a system in which the class of inflammations is made to comprise many affections never before grouped under that heading, and in this respect cannot fail to challenge criticism. The amount of matter contained under each subject is very large, and the care with which the material has been compiled is apparent on every page. The large number of references to original work that are to be found at the bottom of the pages will be of great value to both students and experts. Most of the illustrations, with which the book is plentifully provided, are most excellent, the recent photographs exhibiting a marked superiority over the prints taken from water-color drawings.

Eczema is dealt with at great length, and many valuable suggestions from the author's personal experience are found under Treatment. We look naturally with much interest to the chapter on dermatitis herpetiformis, the affection which the author has been the foremost one to separate from bulbous and multi-form eruptions that had hitherto been loosely classed under other headings. His description of the different varieties is extremely good and the illustrations capital. In the chapter on pemphigus it seems to us that a little more restriction might have been properly exercised, although the difference of opinion that exists to-day among authorities as to the limitation of the term *pemphigus*, and the difficulty of establishing a fixed boundary line between many cases of that disease and of dermatitis herpetiformis, may be regarded as a sufficient justification. There are numer-

ous drawings of microscopical specimens, mostly those of Dr. Gilchrist.

Sexual Neurasthenia; its Hygiene, Causes, Symptoms, and Treatment. By GEORGE M. BEARD, A.M., M.D. Edited with notes and additions, by A. D. ROCKWELL, A.M., M.D. Fifth edition. Small 8vo, pp. xii, 808, with one illustration. New York: E. B. Treat & Co. 1898.

The previous editions of this work have been noticed in these columns, and the present edition contains little that is new, except a description of certain methods of applying electricity. The work, however, is not of sufficient merit to warrant the number of editions through which it has passed.

Skin Diseases of Children. By GEORGE HENRY FOX, A.M., M.D. With 12 photogravure and chromographic plates, and 60 illustrations in the text. New York: William Wood & Co. 1897.

The improvement that modern photography has effected in the portrayal of affections of the skin is well illustrated by this small book by Dr. Fox. He had already demonstrated his ability to produce some of the best photographs that have ever been brought out and many of those included here rank very high, the photogravures especially. The book itself does not claim to be a complete treatise on the cutaneous diseases of children, but is simply a collection of articles that have appeared in the *American Journal of Obstetrics and Diseases of Women and Children*. It is intended as a practical guide to the family physician in those cutaneous diseases of children which he is most likely to meet with, and it may be said to fulfil its object. The formulary at the end, although good, adds nothing to the value of the book.

Diseases of the Skin. By JOHN V. SHOEMAKER, M.D., LL.D. Third edition, revised and enlarged, with chromogravure plates and other illustrations. New York: D. Appleton & Co. 1897.

In this third edition of his treatise on diseases of the skin the author claims in his preface to have incorporated the latest investigations in the bacteriology and pathology of cutaneous disease together with the newer methods of treatment.

Wasted Records of Disease. By CHARLES E. PAGET, Lecturer on Public Health in Owens College, etc. Pp. 92. London: Edward Arnold. 1897.

This treatise is intended to show the need of registration of *disease*, in contradistinction to the registration of *mortality*. The writer reviews the various attempts to secure registration of disease in England, including the more recent legislation for the compulsory notification of infectious diseases, and believes that the duties of the Registrar-General's office might be so extended as to include this work and to publish it at frequent intervals.

He concludes by saying: "The nation's toll of sickness is not made use of for the nation's service. It is locked up and boarded; it stands in the way of progress; it is uninvested capital; it is a standing reproach to enlightened government; it is waste, the sinfulness of which exceeds by far the waste of food, the waste of commerce, or the waste of war; and the neglect of it is nothing less than a violation of that law which, in its simplicity, stands first of all—*salus populi*."

THE BOSTON
Medical and Surgical Journal.

THURSDAY, MARCH 31, 1898.

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THE SIGNIFICANCE OF THE FLAGELLA IN
THE HUMAN ORGANISM.

THE study of the manner of sexual reproduction among the plants and lower animals is at all times of the greatest interest and fascination, and together with the form and the manner of nutrition has limited to a great extent the horizon of the botanists and zoölogists, to the exclusion of the more important questions regarding the use and action of the lower plants and animals. This latter field has been developed of recent years by the physicians who have seen the need to get at the causes predisposing to disease and have built up the study of micro-organisms usually designated as *bacteriology*, although the investigations have long since ceased to be confined to the study of schizomycetes and their relation to health and disease. It is not wonderful that, from the large body of investigators which has sprung up, our knowledge of the strictly morphological and physiological conditions of various organisms studied should be materially extended.

During the past year two observers have given us some new ideas in regard to the earliest forms of sexual reproduction in the lowest forms of animal parasites. MacCallum, of Johns Hopkins, in studying the hematozoa found in birds, and Simond, at the Pasteur Institute, studying the life history of the various coccidia, were both led to draw very similar conclusions, namely, that the flagellated stage found in the cycle of the development of both organisms was one of sexual activity, and that thus early among the monocellular organisms there is a distinct development into a male and female body.

In the earliest recognized attempts at a conjugation in plants the reproductive cells or gametes have no differentiation between the male and female, and the masses of protoplasm, free swimming and propelled by a flagellum simply, fuse together forming a new cell. Among the protozoa the earliest observed analogous

process is seen in the subclass of flagellata of the infusoria.

MacCallum's observation, which has since been repeated on the parasite of estivo-autumnal type of malarial fever, is as follows: In the course of their studies of the *Halteridium* hematozoa he and Opie noticed that there were cells having two distinct characteristics. One was hyaline, put out flagella with a good deal of disturbance and a distinct loss of protoplasmic substance. The other cell was more granular, did not move about as much, and when flagellated did not seem to lose in volume. Also they made out that the actively moving vermicular bodies which had been described before were doubtless the flagella which had become separated from the parent cell. Then came the most fortunate observation. A granular and a hyaline cell were found in the same field of the microscope, and while watched the protoplasm of the hyaline cell became violently agitated and the flagella were thrust out. These soon detached themselves and swam over to the quiescent granular cell, swam about it and finally one made its way into the cell and became lost in protoplasm. The others, after ineffectual attempts to gain an entrance, soon lost their power of motion and disintegrated. Soon after having received the flagellum to itself the cell got rid of its granular material and was apparently ready for new work.

Simond, from a study of his specimens, was led to the same conclusion, although he was not able to see the whole process take place under his eye.

MEDICAL NOTES.

A CONGRESS OF GYNECOLOGY, OBSTETRICS AND PEDIATRICS will be held at Marseilles from October 8th to 15th, Professor Pinard, Professor Pozzi and Professor Broca respectively presiding over the three sections in the order named.

A MEDICAL MARRIAGE LICENSE. — A bill requiring applicants for a marriage-license to appear before a medical board, and forbidding the issue of a license to those afflicted with dipsomania, kleptomania, insanity, or tuberculosis, has been passed by the Ohio Senate.

PROFFERS OF MEDICAL SERVICE. — Surgeon-General Van Reypen, of the navy, has received from physicians over three hundred offers of service as acting assistant surgeons in the navy. These offers cannot be accepted until Congress authorizes the temporary appointment of acting surgeons.

THE SUICIDE OF A MEDICAL WOMAN. — According to the *Lyon Médical* for March 6th, Mlle. Elcueff, one of the externes of the Paris hospitals, committed suicide on account of remorse over her self-alleged neglect in the case of an immature infant that died of athrepsia, as the post-mortem showed, instead of burns from the heating appliances employed to revive it, as she supposed.

RÖNTGEN AND LENARD HONORED.—The Paris Académie des Sciences not only awarded the La Caze prize of 10,000 francs to Röntgen, but also bestowed the same amount upon Professor Lenard, of Heidelberg, whose work on the cathode ray stimulated Röntgen to further research, and led to his great discovery.

THE APPROPRIATION FOR JOHNS HOPKINS HOSPITAL.—The bill to appropriate \$100,000 per annum for two years to the Johns Hopkins University was defeated in the Maryland House of Delegates on March 16th. The Maryland State Senate, on March 22d, passed a bill to give the Johns Hopkins University \$50,000 per annum for two years to tide it over the financial difficulties into which it has gotten by reason of the receivership of the Baltimore and Ohio Railroad Company.

PLAGUE RIOTS IN BOMBAY.—Serious rioting broke out in Bombay on March 8th among the low-caste Hindus and Mohammedans, originating in an attack upon a plague-search party. Two soldiers were killed, and the police fired on the mob, killing seven persons and wounding many others. The mob attacked one of the plague hospitals, burned the offices and stores, and savagely assaulted the doctors, killing one of the latter. Three soldiers on police duty were stoned to death by the rioters.

THE GERMAN BALNEOLOGICAL SOCIETY.—The German Balneological Society held its ninth public meeting on March 11th and following days in Berlin, under the presidency of Professor Liebreich. Among the communications were: "The Question of Contagiousness of Tuberculosis," by Dr. Römpker; the "Effect of the so-called Indifferent Mineral Waters," by Professor Liebreich; the "Hydrotherapy of Simple Ulcer of the Stomach," by Professor Winternitz, and "Vegetable Diet Cures," by Dr. Strosser.

BURSITIS OF THE RETROCALCANEAL BURSA.— "Acute cases may be cured, as a rule, by rest, compression, and inunctions of ichthyol, but they may require aspiration or even incision. Some chronic cases can be cured in the same manner; others require incision and drainage. If osteophytes exist, they must be removed. The side incision does not give free access. It is a better plan, if the bursa is to be exsected or osteophytes are to be removed, to split the tendon by a longitudinal posterior incision, or to cut it across by a zigzag incision, and afterwards suture it (Wiesinger's plan)." — *Da Costa, in Philadelphia Medical Journal.*

INTERNATIONAL CONGRESS OF PHYSIOLOGISTS.—The fourth International Congress of Physiologists will be held at Cambridge, England, from August 23d to 27th. Prof. Michael Foster was at the last Congress elected president of the forthcoming Congress. On August 22d an exhibition of physiological and microscopical apparatus will be held. The exhibits will be contributed by members of the Congress, by directors of physiological laboratories, and by makers recommended by any member or director. The ex-

hibition will remain open during the week of the Congress. The official languages of the Congress will be English, French and German.

CONGENITAL ABSENCE OF A PECTORAL MUSCLE.—At a meeting of the Section in Orthopedic Surgery of the New York Academy of Medicine, Dr. Henry Ling Taylor showed a boy, six weeks old, that had been brought to him on account of asymmetry of the upper part of the chest in front. There was normal fulness of the right side, but the left pectoralis major was wholly wanting. The child moved both arms equally well. It was its mother's fifth child, and the others were normally developed. — *New York Medical Journal.*

AN ORIGINAL WAY OF DOING A VAGINAL HYSTERECTOMY.—Dr. J. D. Arnold, before the California Academy of Medicine, October 16, 1897, reported a case in which a midwife, after having delivered a woman, thought she saw the head of a second child protruding from the vagina. She seized it with both hands, and violently delivered, as she supposed, a second child. What she did deliver was an inverted uterus, completely tearing it away from its attachments. The physician who was called in did nothing but tampon the vagina, and the woman made a complete recovery. No arteries were ligated, either *en masse* or singly. — *Medical Record.*

MEDICAL ETIQUETTE IN CHINA.—Chinese doctors are said to be even more scrupulous than their white brother practitioners in regard to the nice points of professional etiquette. Indeed, if report be true, this honorable custom is at times carried to very inconvenient lengths. The following amusing tale is related in an English journal, which, if not veracious, is at least *ben trovato*: "A Chinese gentleman was struck by an arrow, which remained fast in his body. A surgeon was sent for, and broke off the protruding bit of the arrow, leaving the point embedded. He refused to extract it, because the case was clearly one for a physician, the arrow being inside the body." — *Medical Record.*

THE DIFFICULTIES OF A DOCTOR IN INDIA.—A medical man writes from Bombay: "Often when we pay our visits of inspection to native homes we find the head of the household sharpening a huge knife, wherewith he has pledged his word with neighbors to stab the first doctor sahib who enters his household. In one village we visited, over three thousand of the inhabitants had disappeared and gone to various hiding-places, whence they emerged as soon as we had finished our tour. Of course we were helpless in the matter. We knew the population was missing, but could not scour the country and conduct our physical examinations by force. It would have been like an Afridi expedition. So we returned with our work only half done." — *Hospital.*

BOSTON AND NEW ENGLAND.

ACUTE INFECTIOUS DISEASES IN BOSTON.—For the two weeks ending at noon, March 30, 1898, there

were reported to the Board of Health, of Boston, the following numbers of cases of acute infectious disease: diphtheria 62, scarlet fever 85, measles 51, typhoid fever 10.

NO DEATH FROM DIPHTHERIA.—The week ending last Saturday was the first since July, 1891, in which there was no death from diphtheria in Boston.

NEW YORK.

A DISHONEST CORONER.—Dr. E. B. Coombs, a former coroner of Kings County, was on March 21st convicted of malfeasance in office in the Supreme Court, Brooklyn, and sentenced to imprisonment in the penitentiary for one year and the payment of a fine of one thousand dollars. In his trial it was proved that during his term of office he had been paid for inquests he never held, put in claims signed by imaginary witnesses, and produced testimony of persons who were dead. In summing up for him the most that his counsel could offer in extenuation was the following plea: "If he violated the law that condition arose from his careless adherence to the customs which had grown up in the office, rather than any wilful intent on his part to commit a crime." For a long time it has been well known that frauds and abuses existed in connection with the antiquated system of coroners still retained in New York, but this is perhaps the first instance in which one of these officials has been convicted of a felony.

A STERILIZING PLANT FOR THE INFANTS' HOSPITAL.—Mr. Nathan Strauss, who recently resigned the presidency of the Board of Health, has announced his intention of building for the Department of Charities a plant in which all the milk used in the infants' hospital on Randall's Island, where the mortality has always been excessive, can be sterilized. He proposes to do this in part with the salary which he received from the city, and will carry out the plans of Dr. H. G. Freeman in the contemplated project.

BELLEVUE INTERNES READY FOR WAR.—On March 26th twenty-one of the thirty-two members of the medical and surgical house-staff of Bellevue Hospital, at the suggestion of Dr. G. Boling Lee, Senior Physician of the Fourth Medical Division of the Hospital, signed their names to a paper, offering their services to the government in case of war, which was sent to the Surgeon-General at Washington. Dr. Lee is said to be a nephew of Consul-General Fitzhugh Lee.

Miscellany.

THE DUM-DUM BULLET.

IN view of the interest which men, women and children are taking in all matters connected with warfare, an account of the latest evolution in bullets, taken from the *British Medical Journal*, may prove valuable to our readers and perhaps inhibitory to the warlike part of the population.

As some questions have recently been asked in Parliament with regard to the alleged "explosive" qualities of the Dum-Dum bullet, it may be well to explain what an explosive bullet really is, and the nature of the action of the Dum-Dum bullet. The Geneva Convention laid down a size, below which no missile which contained any compound which was intended to explode and break it up should be used. Anything above this size came within the definition of a shell, and could be used, but any missile below this size, constructed on a similar principle, was an explosive bullet, and could not be used. The diameter allowed was fixed above that of any rifle. The Dum-Dum bullet does not contain any explosive charge, and therefore does not come within the definition of an explosive bullet as laid down by the Geneva Convention. The evolution of the Dum-Dum bullet is very briefly the following: In the struggle to produce a rifle with the longest and most accurate range, the diameter of a bullet has been gradually reduced. To give it a greater penetrating power and a more accurate flight, its substance or outer coating has been made harder, until in the British army the pencil-like metal-coated Lee-Netford bullet, with a diameter of 0.303 inch, has been evolved. This bullet at short ranges may produce terrible effects if it strikes a hard bone, but passes clean through soft parts without causing any material shock to the system. It thus allows a wounded man to charge home, and has consequently been found to be ineffective in stopping rushes of such determined fighters as we have recently encountered in both India and Egypt. To meet this difficulty the Dum-Dum bullet was introduced; it is precisely similar to the Lee-Netford bullet, except that the cupro-nickel covering is not continued over its pointed end. The consequence is that when it comes into contact with the body the softer lead and antimony core which is exposed "sets up" into a broader mushroom-like end, which inflicts greater damage than the hard metal-coated point of the Lee-Netford bullet. All the older bullets, including the Martini-Henry, which is still exclusively used by native troops in India, "set up" in precisely the same way as the Dum-Dum bullet, and the more severe injuries produced by the latter—if indeed they prove to be more severe—depend solely on their much greater muzzle velocity. The Dum-Dum bullet, therefore, does not contravene the present code of international law.

A FICTITIOUS MICROBE.

As was recently noted in the JOURNAL, the discovery of a microbe of baldness has been seriously reported before and discussed by the Paris Faculty of Medicine. The following comments of the editor of the *Medical Press and Circular* are of interest in this connection:

An ingenious Frenchman, of a commercial turn of mind, has created a sensation by proclaiming himself the discoverer of a microbe which is alleged to be the cause of baldness, as in spite of the resignation which people under forty affect when the hair thins to a perceptible degree there is unquestionably a very lively and general desire to preserve the capillary thatch. No better proof thereof can be required than the eagerness with which the victims of premature calvities give a trial to every new compound vaunted as a sure specific against the depilatory process. Now certain forms of baldness, especially of the local kind, are undoubtedly due to the ravages of microbes or fungi, but the usual form of baldness is determined by a readjustment of the peripheral circulation, in virtue whereof the scalp or certain parts thereof no longer receive the normal supply of blood. It is a curious fact that the incidence of this retrograde process is greatly influenced by hereditary proclivities. In some families the baldness proceeds from before backwards, the forehead becoming higher and higher until, so to speak, it reaches the back of the head. Others again, and these are probably the great majority, appear to

grow through their hair, the denuded pate making its appearance at the apex of the human oval. Thence it extends antero-posteriorly, until the top of the head resembles a wide and glistening stream, with rushy margins, the long straggling rushes being carefully drawn along or over the vacant territory for the purpose of rendering the nakedness of the land more conspicuous. To talk of a microbe of baldness in connection with this general process is obviously ridiculous, and would not be worth refuting or even alluding to were it not for the fact that a number of lay journals of standing have lent their columns to the subject, foremost among which we may mention the *Contemporary Review*. All this is part of an ingenious scheme of advertisement, and the references ought properly to have been relegated to the columns *ad hoc*. Remedies for baldness are at least as numerous as cures for phthisis, and the efficacy of the one is about on a par with that of the other.

A CONSULTATION.

THE *University College Gazette* is responsible for the following skit:

An absolutely impossible consultation at U. C. H., and not reported in the *Clinical Journal*. Submitted with the humblest apologies.

Patient is an elderly man of weather-beaten appearance, who has a large swelling on the left side of the face.

DR. B-R-K-R. — Gentlemen: This is an interesting but somewhat obscure case that has been sent up to me by a distinguished medical friend of mine, a staff-surgeon upon one of the largest of Her Most Gracious Majesty's battleships. Having made a most careful and minute chemical, bacteriological and microscopical investigation of the brownish discharge that fills the patient's mouth, I have quite made up my mind that the growth is of a highly malignant character. I bring the case here that you may derive some amusement from the speculations of my colleagues concerning the nature of the malady. I need hardly say that my own opinion will not be the least disturbed by any contrary views they may be pleased to express.

MR. P-L-RD. — As I do not take the remotest interest in either the case itself, or Mr. B's diagnosis of it, I shall not say anything more, but go and have a cigarette.

(Exit Mr. P. rolling one.)

DR. B-R-D-F-RD. — The moment one enters the room, one sees at once that this is a case of right-sided facial hemiatrophy of the fifth variety. I mean any other view is ridiculous upon the face of it — d'you see? Is that quite clear.

MR. G-D-L-E. — I always call to mind that famous remark of Sir William Jenner's, "that the tragedies of life are caused by following other people's advice, and listening to their opinions instead of ——" (*Indulges apologetically in humorous reminiscences of an unexciting character.*)

MR. H-R-S-L-Y. — The case is undoubtedly one of leontiasis ossea, beginning in the hamular process. I should operate at once, making an incision from the external occipital protuberance to the external angular process of the frontal bone, and turning down the flap over the left shoulder. Then sawing through the skull in the middle line, I should remove the whole of the left half of the cranium. To do anything less than this would be childish. Next new case, please.

DR. M-R-T-N. — If Mr. H. would kindly cut off the patient's head altogether I think I might deliver an interesting pathological discourse upon it. (*Mr. H. politely acquiesces, and they retire and discuss the matter together in an amicable manner.*)

MR. J-H-N-S-N. — There can be absolutely no question that this is a case of chronic periosteomyelitic necrotic caries of the lower jaw. (*Recites four chapters of Erichsen in support of this view.*)

MR. C. H-TH. — I think every one here, except myself, is an egregious ass. (*To patient.*) What are you?

PATIENT. — Sailor, sir.

MR. H. — Thought so. Bring a brown pan, Sister. Now, take that beastly thing out. (*Patient removes an enormous quid of tobacco, weighing a quarter of a pound. After this the tumor quite disappears.*) There! Disgusting!! This is what all you smokers of filthy tobacco come to; you end by trying to live on it! (*Cheers and curtain.*)

THERAPEUTIC NOTES.

CAPTOL: A NEW ANTISEBORRHEIC.¹ — Eichhoff recommends captol, a condensation product of tannin and chloral, in seborrhea capitis and its complications; such as itching, scale formation and thinning of the hair. Captol has more rapid and definite effects than a mixture of the two drugs from which it is made, and is entirely harmless and uniritating. It forms a dark brown, hygroscopic powder which dissolves with difficulty in cold water, but more easily in a mixture of warm water and alcohol, is not affected by acids, but is decomposed by alkalies, and turns dark. Eichhoff employs it in a one to two per cent. alcoholic solution, and asserts that in every case in which he has employed it his results have been wonderfully good. In eight to fourteen days the scales have disappeared from the scalp, the hypersecretion of the sebaceous glands has ceased, and the falling out of the hair has stopped. He employs the preparation called "spiritus captoli compositus," which has the following formula:

R	Captol				
	Chloral hydrate	ss.	.	.	1.0 gm.
	Acid tartaric		.	.	
	Ol. rosm.		.	.	0.5
	Spirit vin (65 per cent.)		.	.	100.0
	Essent. flor. aeth.		.	.	9.5

Correspondence.

TREATMENT FOR TERTIARY SYPHILITIC ULCERS.

BOSTON, MARCH 24, 1898.

MR. EDITOR: — We are oftentimes at a loss to give a rapid relief to patients afflicted with large tertiary syphilitic ulcers, especially when the lesion is seated on the leg, and it is for this reason that I beg to submit a formula that I have employed lately in such cases, with most happy results. It is as follows:

R	Hydrarg. soziodol. (Merck)	ss.	.	.	1.0
	Orthoform		.	.	
	Bismuth benzoat.		.	.	23.0
M. D. S.	Apply as a dusting powder to parts.				

The soziodol salt has appeared to me to act quite rapidly in causing a healthy change to take place in the tissues, while the recently discovered local anesthetic orthoform, gives the patient relief from the severe pain usually present in such cases. The benzoate of bismuth is simply as a base, as well as for its slight antiseptic properties.

The above powder is applied every second day and the ulcer dressed with subgallate of bismuth gauze, held in place by a roller bandage.

It is hardly necessary to add that the patients should be carefully observed, in order to avoid the occurrence of mercurial intoxication.

Yours very truly,
CHARLES G. CUMSTON, M.D.

¹ Deutsche med. Woch., 1897, No. 41 and 45.

METEOROLOGICAL RECORD

For the week ending March 19th, in Boston, according to observations furnished by Sergeant J. W. Smith, of the United States Signal Corps:—

Date.	Barometer	Thermometer.			Relative humidity.		Direction of wind.		Velocity of wind.		We'th'r.		Rainfall in inches.	
	Daily mean.	Daily mean.	Maximum.	Minimum.	8.00 A. M.	8.00 P. M.	Daily mean.	8.00 A. M.	8.00 P. M.	8.00 A. M.	8.00 P. M.	8.00 A. M.		8.00 P. M.
S...13	29.89	58	66	49	78	81		S. W.	S. W.	12	24	O. C.	O. C.	
M...14	30.07	48	54	41	60	57	58	S. W.	S. W.	12	12	C. C.	C. C.	
T...15	30.33	37	41	33	45	72	58	N. N.	S. E.	16	8	C. C.	C. C.	
W...16	30.41	37	44	30	70	75	74	N. N.	S.	9	14	O. C.	O. C.	
T...17	29.33	49	60	38	89	74	82	S. W.	S. W.	12	15	R. C.	C. C.	.02
F...18	30.24	48	58	38	82	60	61	W. S.	S.	10	7	C. C.	C. C.	
S...19	29.90	46	51	42	85	74	60	S. S.	S. E.	12	6	O. C.	O. C.	.38
☞	30.11		58	39			70							.40

* O., cloudy; C., clear; F., fair; G., fog; H., haze; S., smoky; R., rain; T., threatening; N., snow. † Indicates trace of rainfall. ☞ Mean for week.

RECORD OF MORTALITY

FOR THE WEEK ENDING SATURDAY, MARCH 19, 1898.

Cities.	Estimated population.	Reported deaths in each.	Deaths under five years.	Percentage of deaths from					
				Infectious diseases.	Acute lung diseases.	Diarrheal diseases.	Typhoid fever.	Diphtheria and croup.	
New York	3,438,899	1225	439	11.04	20.80	.72	.64	4.32	
Chicago	1,619,226								
Philadelphia	1,214,256	484	175	13.04	11.34	1.05	2.52	6.09	
Brooklyn	1,180,000								
St. Louis	570,000	186	35	3.20	21.60	.54	.54	1.62	
Baltimore	560,000	195	63	9.18	17.16	1.56	3.12	1.56	
Boston	517,732	180	49	8.25	15.40		2.20	3.85	
Cincinnati	405,000	107		6.51	17.67		.93		
Cleveland	360,000	107	41	5.58	13.02	.93		.93	
Pittsburg	285,000	125	51	12.00	22.40		.32		
Washington	277,000								
Milwaukee	275,000								
Worcester	105,050	30	9	10.00	6.66		3.33		
Nashville	87,754	37	10	5.40	16.20			2.70	
Fall River	95,919	36	14	22.16	5.54			19.39	
Lowell	87,183	38	13	5.26	10.52			5.26	
Cambridge	56,812	25	11	8.00	8.00	4.00			
Lynn	65,220								
Charleston	65,165	26	7	3.85	15.40	3.85			
New Bedford	62,416	20	9		20.00				
Lawrence	55,510	19	9	10.52	15.78			5.26	
Springfield	54,790	16	7	18.75	12.50	6.25	6.25		
Holyoke	42,364	10	6	40.00	30.00			10.00	
Portland	40,000								
Salem	36,062	8	4		12.50				
Brookton	35,853								
Malden	32,894	7	1	28.56	14.28				
Chelsea	32,716	11	2		9.09				
Haverhill	31,406	12	1	25.00	8.33			25.00	
Gloucester	29,775								
Newton	28,960	9	2						
Fitchburg	28,392	4	1		25.00				
Taunton	27,812	14	0		21.42				
Quincy	22,563	9	5	11.11	11.11				
Pittsfield	21,691								
Waltham	21,812	7	1		14.28				
Everett	21,575	14	7	7.14	21.42				
Northampton	17,448								
Newburyport	14,794	8	0						
Amesbury	10,990								

Deaths reported 3,094; under five years of age 958; principal infectious diseases (small-pox, measles, diphtheria and croup, cerebro-spinal meningitis, diarrheal diseases, whooping-cough, erysipelas and fevers) 317, acute lung diseases 569, consumption 337, diphtheria and croup 107, measles 55, typhoid fever 40, diarrheal diseases 32, scarlet fever 28, whooping-cough 28, cerebro-spinal meningitis 23, erysipelas 5.

From measles New York 31, Philadelphia 13, Pittsburg 4, St. Louis, Baltimore, Cincinnati and Springfield 1 each. From scarlet fever New York 19, Philadelphia 4, Baltimore 3, Pittsburg and Fall River 1 each. From whooping-cough New York 10, Pittsburg 5, Philadelphia 3, Baltimore and Lynn 2 each, Cambridge 1. From cerebro-spinal meningitis New York 6, Boston and Somerville 3 each, Worcester, Holyoke and Malden 2 each, Philadelphia, Cleveland, Cambridge and Lawrence 1 each.

In the thirty-three greater towns of England and Wales, with an estimated population of 11,218,378, for the week ending March 12th, the death-rate was 21.1. Deaths reported 4,536; acute diseases of the respiratory organs (London) 429, measles 258, whooping-cough 124, diphtheria 68, fever 40, diarrhea 31, scarlet fever 17.

The death-rates ranged from 13.8 in Burnley to 29.1 in Swansea; Birkenhead 15.7, Birmingham 21.6, Bradford 20.1, Cardiff 18.5, Gateshead 26.1, Hull 22.2, Leeds 18.3, Liverpool 25.1, London 21.5, Manchester 21.5, Nottingham 24.3, Salford 19.8, Sheffield 20.9, West Ham 17.5.

OFFICIAL LIST OF CHANGES IN THE STATIONS AND DUTIES OF OFFICERS SERVING IN THE MEDICAL DEPARTMENT, U. S. ARMY, FROM MARCH 19, 1898, TO MARCH 25, 1898.

CAPTAIN ROBERT J. GIBSON, assistant surgeon, is relieved from duty at Fort Thomas, Ky., and ordered to Fort Meade, S. D., for duty.

MAJOR LOUIS W. CRAMPTON, surgeon, will be relieved from duty at Fort Meade, S. D., upon the arrival there of CAPTAIN GIBSON, and is ordered to Fort McHenry, Md., to relieve MAJOR CHARLES K. WINNE, surgeon.

MAJOR HENRY MC ELDERBY, surgeon, now at Fort Leavenworth, Kan., will proceed to Hot Springs, Ark., and report to the commanding officer of the Army and Navy General Hospital for treatment therein.

MAJOR GEORGE H. TORNEY, surgeon, will be relieved from duty at the U. S. Military Academy, West Point, N. Y., on or about June 1, 1898, and ordered to Fort Leavenworth, Kan., for duty.

MAJOR JOHN M. BANISTER, surgeon, will be relieved from duty at Fort Leavenworth, Kan., upon the arrival there of MAJOR TORNEY, and ordered to the U. S. Military Academy, West Point, N. Y., for duty.

The order assigning MAJOR EGON A. KOKER, surgeon, to duty as chief surgeon, Department of the Platte, is revoked.

FIRST-LIEUT. CHARLES LYNCH, assistant surgeon, is relieved from duty at Fort Sheridan, Ill., to take effect upon the completion of his examination for promotion, and ordered to Galveston, Tex., for duty.

MAJOR HENRY MC ELDERBY, surgeon, is relieved from duty at Fort Leavenworth, Kan., and will proceed to Omaha, Neb., and report in person to the commanding general, Department of the Missouri, for assignment to duty as chief surgeon of that department.

FIRST-LIEUT. JOHN H. STONE, assistant surgeon, is relieved from duty at Fort Riley, Kan., and ordered to Fort Leavenworth, Kan.

CAPTAIN JEFFERSON D. POINDEXTER, assistant surgeon, is relieved from duty at Willets Point, N. Y., and from temporary duty at Fort Hankilton, N. Y., and ordered to report to CAPTAIN WILLIAM C. GORGAS, assistant surgeon, for the purpose of assisting him in examining recruits in that city, including the borough of Brooklyn.

OFFICIAL LIST OF CHANGES OF STATIONS AND DUTIES OF COMMISSIONED OFFICERS OF THE UNITED STATES MARINE-HOSPITAL SERVICE FOR THE FOURTEEN DAYS ENDING MARCH 24, 1898.

BANKS, C. M., surgeon. Detailed as delegate to represent Service at Ninth International Congress of Hygiene and Demography, Madrid, Spain, April 10-17, 1898. March 15, 1898.

WOODWARD, R. M., passed assistant surgeon. To rejoin station at Reedy Island Quarantine, April 1, 1898. March 21, 1898.

SMITH, A. C., passed assistant surgeon. To rejoin station at Gulf Quarantine. March 21, 1898.

CUMMING, H. S., assistant surgeon. Assigned to Immigration Depot, New York, N. Y., for temporary duty. March 11, 1898. Granted leave of absence for one month upon being relieved from duty at Immigration Depot, New York, N. Y. March 16, 1898.

McMULLEN, JOHN, assistant surgeon. To proceed to Philadelphia, Pa., and report to commanding officer for duty. March 21, 1898.

LUMSDEN, L. L., assistant surgeon. To proceed to Boston, Mass., and report to commanding officer for duty and assignment to quarters. March 15, 1898.

ANDERSON, J. F., assistant surgeon. To proceed to Mobile, Ala., and report to commanding officer for duty and assignment to quarters. March 15, 1898.

BOARD CONVENED.

The following Board was convened to meet at Washington, D. C., March 16, 1898, to revise quarantine regulations: Surgeon H. W. AUSTIN, Chairman; Surgeon H. R. CARTER; Passed

Assistant Surgeon J. H. WHITE; Passed Assistant Surgeon J. J. KINYOUN; Passed Assistant Surgeon G. B. YOUNG, Recorder.

APPOINTMENTS.

J. L. LUMSDEN and JOHN F. ANDERSON, of Virginia, commissioned by the President as assistant surgeons.

OFFICIAL LIST OF CHANGES IN THE MEDICAL CORPS OF THE U. S. NAVY FOR THE TWO WEEKS ENDING MARCH 12, 1898.

L. B. BALDWIN, surgeon, detached from the "Puritan," March 17th, and ordered home with two months' leave.

J. D. GATEWOOD, surgeon, detached from duty at the Naval Museum of Hygiene, Washington, D. C., March 15th, and ordered to the "Puritan," March 17th.

C. D. KINDLEBERGER, assistant surgeon, detached from the "Olympia," and ordered home with two months' leave.

N. H. DRAKE, surgeon, detached from duty with the "Minneapolis" and "Columbia," and ordered to the "Minneapolis," March 15th.

C. G. HERNDON, surgeon, ordered to the "Columbia," March 15th.

SOCIETY NOTICES.

BOSTON SOCIETY FOR MEDICAL IMPROVEMENT.—A regular meeting of the Society will be held at the Medical Library, 19 Boylston Place, on Monday evening, April 4th, at 8 o'clock.

Dr. M. Prince will read a paper entitled: "Hysterical Neurasthenia."

Dr. F. G. Balch: "Papillomatous Urethritis." Election of members.

JAMES G. MUMFORD, M.D., *Secretary*, 197 Beacon St.

THE SUFFOLK DISTRICT MEDICAL SOCIETY, SURGICAL SECTION.—The Surgical Section will meet at the Medical Library, 19 Boylston Place, on Wednesday evening, April 6, 1898, at 8 o'clock.

Papers: "Report of a Case of Intermittent Hydronephrosis, with Cure by Operation," by Dr. J. W. Elliot. Drs. A. T. Cabot, M. H. Richardson and F. S. Watson have been invited to discuss this paper.

"Orbital Injury from Contre-Coup," by Dr. F. E. Cheney. Drs. Myles Standish and G. L. Walton have been invited to discuss this paper.

"A Case of Actinomycosis," by Dr. E. A. Codman.

The presentation of pathological specimens, apparatus, etc., of surgical interest is invited.

PAUL THORNDIKE, M.D., *Secretary*, 244 Marlborough St.

ASSOCIATION OF AMERICAN PHYSICIANS.

The preliminary programme of the thirteenth annual meeting of the Association of American Physicians will be held in the Arlington Hotel, Washington, D. C., May 3, 4 and 5, 1898.

1. President's Address. F. C. Shattuck, Boston.

2. Discussion.—Is a Uric-Acid Diathesis an Important Factor in Pathology? Referee representing Physiological Chemistry, V. C. Vaughan, Ann Arbor; Referee representing Clinical Medicine, Wm. H. Draper, New York; Co-Referee representing Clinical Medicine, Jas. Tyson, Philadelphia.

3. Bacillus Icteroides (Sanarelli) and Bacillus X (Sternberg). Geo. M. Sternberg, Washington.

4. Comparative Studies of Bovine Tubercle Bacilli and of Human (Sputum). Theobald Smith, Boston.

5. Actinomycotic Forms of the Bacillus Tuberculosis; An Experimental Study. Simon Flexner, Baltimore.

6. Gastric Syphilis with the Report of a Case of Perforating Syphilitic Ulcer of the Stomach. Simon Flexner, Baltimore.

7. Some Observations on Cardiac Syphilis. I. Adler, New York.

8. Danger of Error in Diagnosis between Chronic Syphilitic Fever and Tuberculosis. E. G. Janeway, New York.

9. Two Attacks of Temporary Hemiplegia Occurring in the Same Individual as the Result of the Use of Peroxide of Hydrogen in a Sacculated Empyema (Pleural). E. G. Janeway, New York.

10. Acute Interstitial Nephritis. Wm. T. Councilman, Boston.

11. Chronic Interstitial Nephritis (by title). I. N. Danforth, Chicago.

12. Acute Leucemia. M. H. Fussell and A. E. Taylor, Philadelphia.

13. Bacteriology of Cheese. V. C. Vaughan and Julian T. McClymonds, Ann Arbor.

14. A Chapter in Peripheral Pathology; the Circulation in the Feet. Morris Longstrech, Philadelphia.

15. A Case of Chronic Infective Endocarditis, with Streptococci found in the Blood before Death, Treated by Antistreptococcus Serum and Experimental Researches upon the Effects of Injections of Antitoxins upon the Kidneys. W. H. Thomson, New York.

16. Nephritis of Malarial Origin. W. S. Thayer, Baltimore.

17. Experiments upon the Localization of Micro-organisms in the Spleen and the Importance of a Lesion of an Organ for the Localization of Bacteria Within It. S. J. Meltzer and T. M. Cheesman, New York.

18. Congenital Stenosis of the Pylorus in Infants. S. J. Meltzer, New York.

19. Paralysis of the Left Recurrent Laryngeal Nerve in Mitral Stenosis. Wm. Osler, Baltimore.

20. Combined Symptoms of Myxedema and Exophthalmic Goitre. Wm. Osler, Baltimore.

21. The Renal Form of Enteric Fever. J. C. Wilson, Philadelphia.

22. Gastric Carcinoma Associated with Hyperchlorhydria. D. D. Stewart, Philadelphia.

23. The Diffuse Infiltrating Form of Secondary Melano-Sarcoma of the Liver (by title). L. Hektoen, Chicago.

24. Myxedema and Albumosuria, Treatment with Thyroid Extract, Death. R. H. Fitz, Boston.

25. Studies of Antitoxins for Tuberculosis (by title). Edward L. Trudeau, Saranac Lake.

26. Antitoxin Treatment of Pneumonia. Andrew H. Smith, New York.

27. Some Usually Overlooked Physical Signs in Chest Diseases. Norman Bridge, Los Angeles.

28. A Case of Mycetoma (Madura Foot). James H. Wright, Boston.

LECTURES ON CLIMATOLOGY.

Dr. S. E. Solly, of Colorado Springs, has consented to deliver a special course of lectures on Climatology, in the New York Post-Graduate Medical School and Hospital. The lectures will be on April 25th, 26th, 29th, May 2d, 4th, 6th, at 5 p. m. Admission will be by ticket only. Members of the profession not specially invited may secure tickets, without charge, on application, either personally or by note, to the superintendent, in the office of the School.

RECENT DEATH.

GEORGE THOMAS HOUGH, M.D., M.M.S.S., died in New Bedford, March 24, 1898.

BOOKS AND PAMPHLETS RECEIVED.

Ophthalmia Neonatorum. Implantation of a Glass Ball for the Support of an Artificial Eye and Mules' Operation for the Substitution of Enucleation of an Eyeball. By L. Webster Fox, A. M., M.D., Philadelphia, Pa. Reprints. 1898.

The Health Resorts of Europe, a Medical Guide to the Mineral Springs, Climatic Mountain and Seaside Resorts, Milk, Whey, Grape, Earth, Mud, Sand and Air Cures of Europe. By Thomas Linn, M.D. (of Nice and Paris). Fifth edition. London: Henry Kimpton. 1898.

Therapeutics of Infancy and Childhood. By A. Jacobi, M.D., Clinical Professor of the Diseases of Children in the College of Physicians and Surgeons (Columbia University), New York; Late President of the Association of American Physicians, etc. Second edition. Philadelphia: J. B. Lippincott Co. 1898.

Fat and Blood; An Essay on the Treatment of Certain Forms of Neurasthenia and Hysteria. By S. Weir Mitchell, M.D., LL.D., Harv., Member of National Academy of Sciences; Formerly President of the College of Physicians of Philadelphia, etc. Seventh edition. Philadelphia: J. B. Lippincott Co. 1898.

Atlas and Essentials of Pathological Anatomy. By Dr. O. Bollinger, Obermedicinalrat and Professor. Volume I. Circulatory, Respiratory and Digestive Apparatus, including the Liver, Bile Ducts and Pancreas. With 69 colored figures upon 60 plates and 18 illustrations in the text. New York: William Wood & Co. 1898.

A Case of Phlegmonous Gastritis following Ulcus Carcinomatosum of the Pylorus, Dilatation, Perforation and Peritonitis, A Clinical History of Fourteen Months with Chemical, Bacteriological and Histopathological Study. By John C. Hemminger, M.B., Ph.D., M.D., and Delano Ames, A.B., M.D., Baltimore. Reprint. 1897.

Diseases of Women, a Clinical Guide to their Diagnosis and Treatment. By George Ernest Herman, M.B., Lond., F.R.C.P., Obstetric Physician to and Lecturer on Midwifery at the London Hospital; Examiner in Midwifery to the Universities of London, Oxford. With 252 illustrations. New York: William Wood & Co. 1898.

Diseases of Women, a Text-Book for Students and Practitioners. By J. C. Webster, B.A., M.D. (Edin.), F.R.C.P. Ed., Demonstrator of Gynecology, McGill University; Assistant Gynecologist, Royal Victoria Hospital, Montreal; Fellow of the Royal Society of Edinburgh, etc. Illustrated with 241 figures. Edinburgh and London: Young J. Pentland. New York: The Macmillan Co. 1898.

Original Articles.

HOSPITALS AND SANATORIA FOR CONSUMPTION ABROAD.¹

BY EDWARD O. OTIS, M.D.,
President of the American Climatological Association.

(Concluded from No. 12, p. 268.)

In speaking of the German sanatoria it is well to state at the outset the leading motive upon which they are all conducted; it is the hygienic-dietetic method in all its scientific rigor. In comparison with this, climate seems to hold a secondary consideration; but, on the other hand, whatever the climate, the *Freiluft Kur* (free-air cure) is practised with an extreme insistence as we shall see, and partially or wholly by means of the *Ruheluft Kur* — rest in the open air.

GÖRBERSDORF.

In the southwestern part of Germany, in the Silesian Mountains, is situated the little village of Görbersdorf, lying in a well-sheltered valley surrounded by wooded hillsides. Here, about forty years ago, Brehmer



Brehmer Sanatorium at Görbersdorf.

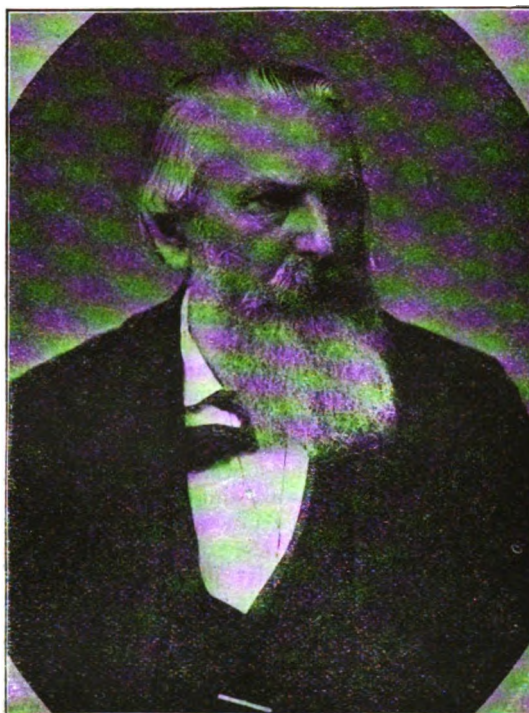
founded his famous sanatorium, the parent of all the others. Begun in a small way, it now consists of large and handsome buildings with several detached villas, surrounded by very extensive grounds. Meeting with much opposition at first, Brehmer, before he died in 1889, had the satisfaction of seeing his method adopted more or less closely in all systematic attempts to cure phthisis; other sanatoria established on the principles laid down by him; and more favorable results than had ever before been obtained in the treatment of the disease. To-day the Brehmer hygienic-dietetic treatment, with perhaps some modifications, is the best we have, when weighed by results.

Brehmer's theory of the underlying cause of phthisis was a disproportion between the heart and lungs, the latter relatively voluminous, the former small, with thin, flabby, feeble walls. Consequently he considered that the most important object in the treatment was to strengthen this organ, and methodic hill-climbing the best means to obtain this. For this purpose in the park of about 800 acres surrounding the sanatorium,

¹ Read before the Boston Society for Medical Improvement, December 12, 1897.

he constructed over nine miles of footpaths of gentle ascent, with frequent benches and pavilions for resting. Measured walks of measured steepness was then a fundamental principle of his treatment, and only the febrile cases and those with some contraindicating complication were exempt. The other sanatoria have modified this plan, and place the emphasis upon the *Ruheluft Kur*, rest in the open air. It is used, to be sure, at Görbersdorf, but not to the extent that it is at Falkenstein and Hohenhonnef. At these latter it is the striking feature of the treatment.

The climate at Görbersdorf is a mountain one, but not a high altitude one, it being 1,800 feet high. The



Dr. Brehmer, founder of Görbersdorf Sanatorium.

sanatorium building is a large gothic structure of brick of very imposing appearance in the midst of a beautiful garden; and besides the old and new *Kur haus* there are three annexes or villas. The internal arrangements are very extensive, consisting of a winter garden, conversation and reading rooms, large dining halls, various reception rooms, an imposing gothic staircase, and bedchambers hygienically arranged. One notices various suggestive maxims painted on the walls, like the following: "Wolle nur eins, und das wolle von Herzen" (Desire but one thing and that with all the heart). "Die lohnendste Arbeit für einen Kranke ist: gesund zu werden" (The labor which repays a sick man the best is to get well).

Besides the sanatorium proper, there are two detached buildings of plainer construction, where patients are received at a reduced price. There is also a chemical and bacteriological laboratory, a meteorological observatory and a medical library. Prof. Rudolf Kobert, formerly director of the Pharmacological Institute at Dörpat, is the physician in charge, and he is assisted by five physicians of various nationalities. The clientele comes from Germany, Russia, Hungary,

Poland; and I found two from America. The supervision of the patient's life is most exact and continuous; every two weeks he is examined anew by the professor, and is always under the observation of one or another of the physicians, all of whom except the director, take their meals with the patients. Each is individualized in his treatment. As an illustration of the painstaking care, I noticed in the little reading library certain starred books, and on inquiry found that they were of a rather exciting nature and were forbidden to those of nervous temperament as likely to produce a rise of temperament or some other unfavorable symptom. There are five meals a day reinforced by milk. Kefir is prepared on the premises in large quantities and is much used, especially in gastro-intestinal troubles and in conjunction with alcoholic drinks for night-sweats. Most of the patients use wine or beer. In fever milk is the principal diet, and as much as three litres in twenty-four hours is given a patient.

Hydro-therapeutics, as in the other sanatoria, is an important adjunct of the treatment in the form of simple bathing with acidulated water, the wet pack with massage and cold douches. I was interested in watching the method of giving the latter. In a room adjoining the douche sits a physician at a table, with a watch provided with a second hand, and with the names of those for whom the bath is prescribed. The attendant informs the physician through a speaking tube when the patient is ready, and the doctor turns on the water (which he alone manipulates) for the specified number of seconds, as indicated in his list. When through, the attendant throws a blanket about the patient and rubs him down. Only the stronger and convalescent patients are allowed this douche.

The sputum is deposited in shallow cuspidors scattered about the building, containing sawdust. Each patient also has a Dettweiler pocket spit-cup. The sputum is destroyed by burning.

A few minutes' walk from the Brehmer establishment brings one to Dr. Römpler's sanatorium, which is also extensive, accommodating about 100 patients. Although not as imposing as Brehmer's, it is equally comfortable and complete, and on account of the lighter character of the architecture, gives one a very pleasing and cheerful impression. In common with the other sanatoria, it possesses a fine winter garden, which is practically a great conservatory affording an extensive and beautiful view even to the horizon, and is the favorite lounging place for the inmates when the weather forbids outdoor life. The *Liegekalle* is in the second-story balcony with glass roof, which seemed to me preferable to those on the ground floor. The extensive park is laid out with pleasant paths of varying grades (some protected) extending up to the richly wooded mountain side, with seats, terraces and pavilions, affording comfortable and picturesque resting places. The method of treatment is similar to that of the larger establishment—abundant alimentation, outdoor air (rest in the reclining chairs and walking in the paths of gentle ascent) and hydro-therapeutics.

Dr. Römpler's personality is most pleasing, which doubtless has much to do with the success he attains. He is a great lover of nature and inspires his patients with his enthusiasm for outdoor life. In a few words he well sums up the conditions of cure: "Upon the ability of the organism to resist depends finally the possibility of cure. To increase this power of resistance through gradual blunting of the susceptibility to

irritation (hardening); through the improvement of the nutrition and quality of the blood; and, finally, through the avoidance of hurtful influences, and through instruction and training for future guidance, is the principal problem of the phthisio-therapeutist."

The third sanatorium at Görbersdorf is that of Dr. Weicker, which is a small one, and, as Dr. Weicker says, on the plan of a home rather than that of a large institution, he and his wife living in the institution with his patients; and the method is essentially that of the others. It was originally founded by the Gräfin Pückler, under whose name it still stands. Dr. Weicker also has charge of a people's large sanatorium in Görbersdorf, consisting of seven villas, which received 256 persons during the year 1896. It was established for working people who are members of the so-called insurance society for the disabled and aged; the expense being defrayed by the society, allowing each member a certain sum. The insurance societies of Germany of this nature are finding it for their interest to send their consumptive members to such an institution and have a certain proportion of them returned to their usual avocation, rather than support them indefinitely as invalids. Of 185 persons who were dismissed in 1896, 70.3 per cent. were capable of resuming their work; and for the three years from 1894 to 1896 inclusive, of those communicated with who were dismissed in these respective years as capable of resuming their work, 60, 71 and 89 per cent. respectively, still remained so at the beginning of 1897; so that from an economic point of view, this plan of people's sanatoria is a profitable venture for the insurance societies.

DAVOS.

In the upper Engadine Valley of Switzerland is the high altitude climatic station of Davos-Platz, where is situated the sanatorium of Dr. Turban. Davos first became known as a health resort for consumptives through Dr. Spengler, who was practising there and who communicated the fact of its immunity from phthisis to the German climatologist, Meyer-Ahrens. Through the publications of the latter, Dr. Unger, a consumptive, went to Davos and was cured; and through the exertions of Drs. Splenger and Unger the advantages of the climate for consumption began to be appreciated in Europe. It was a radical departure from the established ideas of a suitable climate for this disease, and it seemed a strange not to say dangerous experiment for a consumptive to pass the winter in the snows of the Alpine Mountains. As the favorable reports of those who had made the venture, however, became known, the fame of the place spread, and from eight in 1865, the number of consumptives who visited it increased yearly, until in 1890 they amounted to 1,511, of which 89 were Americans; and now it is the most popular high-altitude resort upon the Continent, the English coming next to the German in numbers. It is called a "winter resort," the climate at that season being considered the most favorable, although Dr. Turban told me that the seasons should make no difference, and one should remain continuously until he was cured. The climate is characterized by a cold, pure, dry air of great diathermancy, much sunshine and but little wind, resembling closely that of Colorado. The snow covers the ground deeply during the winter, but it is dry.

Davos itself is situated in a little valley a mile wide

running from northeast to southwest. The majority of the patients who resort there occupy the numerous and large hotels which have sprung up, and although there is some sort of general medical supervision, they do not, of course, afford the constant and systematic care of a sanatorium.

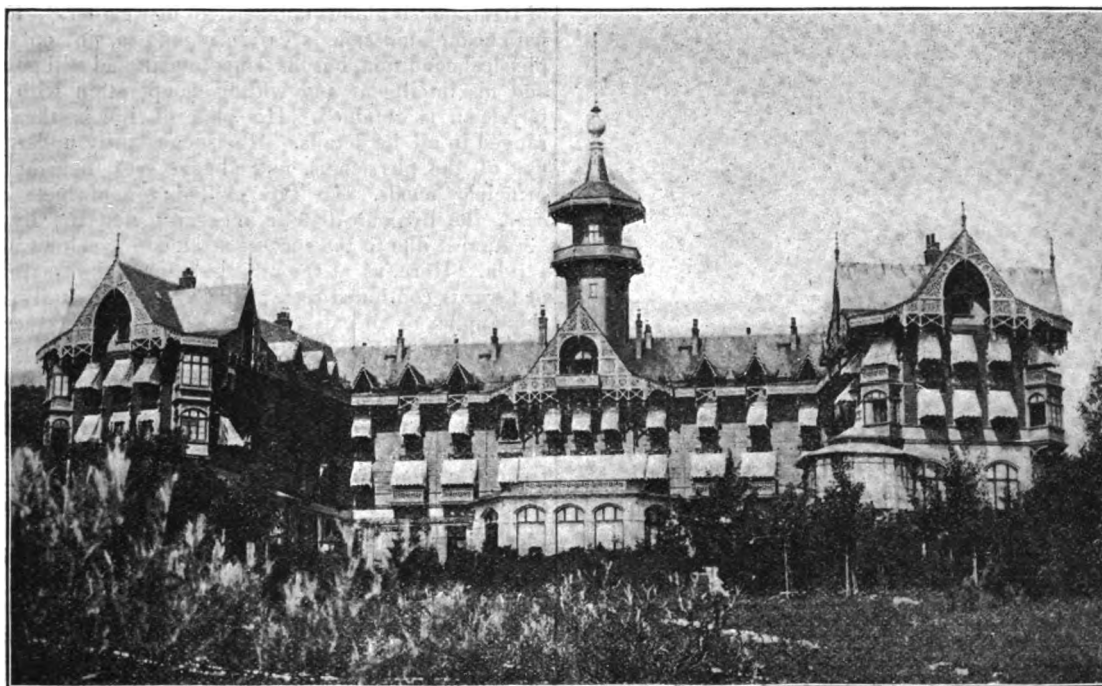
Dr. Turban can accommodate about 70 persons in his establishment, which lies on the south side of Davos, protected by the mountain side on the north, and open to the south, upon which side of the building are most of the rooms, verandas and terraces for the rest treatment. The internal arrangements are good, and much like those of the other sanatoria. Each bedroom has a balcony, is heated by low-pressure steam indirectly, has a ventilating flue, hard floors, washable walls, and simple and easily cleaned furniture. There

Kobert also called my attention to the same fact at Görbersdorf.

FALKENSTEIN.

Of all the sanatoria for the treatment of phthisis, that of Falkenstein is probably the most universally known, and its consulting physician Geheimer-Sanitätsrath Dr. Dettweiler, the most noted of phthisiotherapists. It is well to remember, however, that Brehmer, the father of the sanatorium treatment, was the teacher of Dettweiler.

Nine miles out of Frankfort is the picturesque village of Cronberg in the Taunus Hills, where resides the Dowager Empress of Germany for a good part of the year. A walk of about forty minutes up the hill from here brings one to the tiny village of Falkenstein,



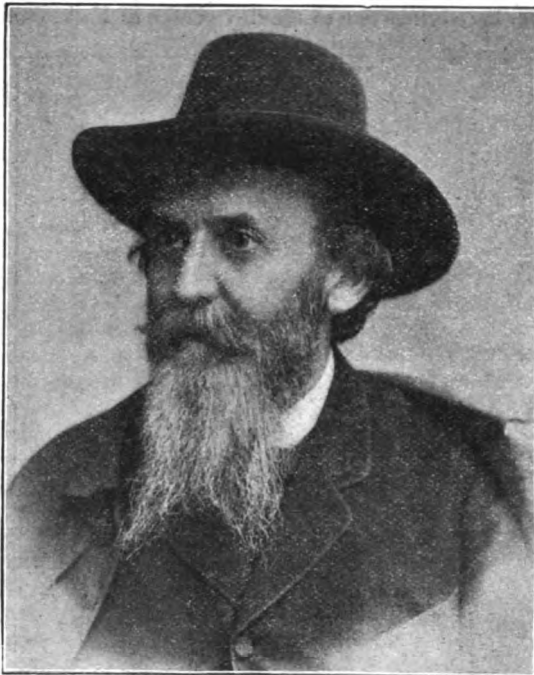
Falkenstein Sanatorium.

is a gymnasium, laboratory and the usual douche room. The method is the Brehmer-Dettweiler, with the emphasis upon exercise (walking) rather than upon rest, as the *jour médical* of an ordinary patient shows: First, cold friction or douche; 7.30 to 8.30, first breakfast; a walk until lunch at 10.30; a second walk until 11.30; from 11.30 until 1, rest in the reclining chairs; dinner at 1; afterwards rest again until 4; at 4, tea, and a walk until 6; rest from 6 to 7; supper at 7; after supper, rest in the reclining chairs until 10, which is bedtime. The greatest care is given to the matter of nutrition, and the food and its preparation receives the especial attention of the physician. Evidently Dr. Turban agrees with Dr. Dettweiler that his kitchen is his pharmacy.

Dr. Turban told me that his cured patients could return with safety to the climate of middle Europe, which was not always the case when they went to the south of Europe. He also mentioned the fact of the increased assimilation in this climate and the consequent rapid gain in flesh, patients gaining in a short time from ten to twenty pounds or more. Professor

commanding an extended view over the valley of the Main with Frankfort in the distance. Here, in a location protected on the north, west and east is situated the sanatorium, 1,300 feet above sea-level. The institution consists of a main building with two wings joining it at an obtuse angle enclosing a large terrace, and two annexes united to the main building by covered promenade galleries. The terrace enclosed by the wings of the main building and looking towards the south, has a continuous broad veranda of glass, provided with sun blinds and curtains, where, upon cushioned reclining chairs one sees long rows of patients lying rolled in rugs, taking the rest cure, some reading or writing, others conversing, and a few sleeping. There are also, near by, pavilions, some revolving, affording further opportunity for the same treatment. The climate is that of central Germany, its principal characteristic being a pure atmosphere free from dust, which from Dettweiler's point of view, is the chief consideration in the climatic treatment of phthisis, provided it can be utilized continuously. Only about half the days in the month are sunny.

The internal arrangements are similar to those in the other large sanatoria: A large, well-ventilated dining-hall accommodating 200 persons; reading, music and billiard rooms; post and telegraph office; bacteriological and analytical laboratory; throat and douche rooms; various offices and consulting rooms. Each sleeping-room has a special ventilating flue and the usual simple furnishings; linoleum floors, washable walls; they are never swept but cleaned with damp or wet cloths. The windows are always open. Near by is the dairy and stable, gas-works, and a disinfecting apparatus. As in most of the other sanatoria the system of drainage is on the principle of chemical precip-



Dr. Dettweiler, director of Falkenstein Sanatorium.

itation with cleansing basin. The large corridors for rest treatment (*Liegehallen*), which were first introduced as a means of treatment at Falkenstein, have a powerful gaslight between the heads of each two chairs permitting the patients to read as they lie out in the evening. Blue-glass spittoons containing water are distributed in the halls on brackets; smaller ones in the rooms, and white crockery ware ones on the grounds. Each patient is required to carry with him the Dettweiler pocket spit-cup, and expectoration except in these receptacles is absolutely prohibited—handkerchiefs or cloths not being allowed. The compliance with this law seemed to be perfect. The sputum is disposed of by throwing it in the waste water or burning.

The *jour médical* for an average patient, as told by one of them, is as follows:

- 7 A. M. Rubbing—dry or wet—or a douche.
8. Breakfast, consisting of coffee, tea or chocolate, with rolls, butter, honey and milk.
- Until 10, the rest treatment in the reclining chairs.
10. Second breakfast, of bread, butter, milk and soup, with wine or cognac. (Upon this latter Dr. Dettweiler places a high value.)
- 10.30 to 1 P. M. The rest treatment again.

1. Dinner: soup, fish, vegetables, several kinds of meat, fruit, dessert and coffee.
- 2 to 4.30. The rest cure again.
4. Milk.
- 4.30 to 7.30. Rest or walking.
- 7.30. Supper, consisting of soup, hot and cold meats, salad, preserves.
- After supper the rest treatment until 10, with milk at 9.
10. Retire.

It will be seen from the above that the rest treatment (*Ruheluft Kur*) occupies most of the day, and herein is a marked difference between Görbersdorf and Falkenstein; Dettweiler lays great stress upon rest in the open air, while Brehmer put the emphasis upon methodical *hill-climbing*. Dettweiler so insists upon this system of rest treatment that the most of his patients spend from seven to eleven hours daily in the open air in spite of rain, fog or snow, and of cold, even to 12° below zero. As Ransom observes, "This form of treatment is almost independent of weather." Each patient on admission is carefully studied, not only his physical condition, but his temperament and will power, and his intelligent and willing co-operation with the physician is obtained. His plan of life is then arranged in all its details. He is constantly under the eye of the physicians, and always sees them at the principal meals. To this skilled watchfulness and care, the hygienic-dietetic measures, and the hyper-ventilation is due to the success attained in such an institution. Here, as at the other sanatoria, the treatment of fever is continued rest, physically and mentally, and this applies to all patients who have a temperature of 37.5° to 38° C. (99.5 to 100.4° F.) or over. At some, as at Hohenhonnef, the patient is not even allowed to lie out in the *Liegehallen*, for fear the moving and excitement may keep up or increase his fever, but is kept absolutely quiet in his room. Generally this treatment alone with some Hungarian wine or cognac suffices in a short time to reduce the temperature to normal. Knopf explains this disappearance of fever after a short sojourn at a sanatorium by the almost total absence of pathogenic microbes, especially the streptococci, in the pure atmosphere.

I was struck with the appearance of the patients as I saw them at dinner: they hardly differed from the persons one would see in the dining-room of an ordinary hotel; and presented but little, if any, the appearance one usually associates with a consumptive. During the entire meal I hardly heard a cough. Moreover it was as contented and happy a looking assemblage as one would see anywhere. The average length of residence is about three months.

The results at Falkenstein from 1876 to 1886, of the patients who have been kept under observation since their discharge, is 13.2 per cent. of complete cures, and 11 per cent. of relative (arrested), a total of 24.2 per cent.; 60 per cent. or more are improved. The expense here, as at most of the other sanatoria, is from \$20 to \$25 a week.

One cannot leave Falkenstein without carrying away a lasting impression of its founder and guiding genius, Dr. Dettweiler. It was my good fortune to ride up to the sanatorium with him from his modest home in Cronberg. It was a chilly, disagreeable morning in May, much like our March weather, which perhaps suggested his remark that it was not so much a climate as a method; tuberculosis could be cured in any climate. He told me of his early struggle with tuberculosis in his own case, when it seemed that he could not live. But the struggle was successful, and now he is a man

of middle age or more, and has accomplished an immense amount of work, and is still the inspiration of his sanatorium. He is a man of great simplicity and sympathy, inspiring enthusiasm, and well illustrates the power of the personal factor in the success of the physician. He makes his patients love him, and in consequence they readily yield to his will and guidance. "In him," as Dr. Thorne says, "reason, science and long experience are correlated into action by discrimination, adaptability, sympathy and unbending will. In both of the senses in which the term can be employed, he is a presiding genius."

RUPPERTSHAIN.

About an hour's drive from Falkenstein is situated the people's new sanatorium (opened in 1895), containing about 80 beds, under the direction of Dr. Nahm, a former assistant of Dr. Dettweiler. It was almost entirely built by a wealthy lady of Frankfort, who disliking the proximity of the previous smaller one to her country home in Falkenstein, agreed to build one at Ruppertschtein if this should be removed, a suggestion to neighbors of consumptive homes who dislike their presence. It is partially supported by the sanatorium at Falkenstein, all above five per cent. upon that investment being devoted to this purpose. Its situation is equally favorable with that of Falkenstein. Its internal arrangements are, of course, plainer but comfortable, and possessing all the facilities for carrying out the same method of treatment. Through the courtesy of the assistant physician I took dinner with the patients, which consisted of soup, with which many were served twice; meat with potatoes and beans, and beer. The women are kept entirely separate from the men, having their own dining-room and *Liegehalle*.

HOHENHONNEF.

Twenty-five miles south of Cologne, on the right bank of the Rhine, is the pretty village of Honnef, called the "Rhine Nice," and long known and visited for its mild and salubrious climate. About half an hour's walk up the hill from Honnef on the southwestern slope of the Siebengebirge is situated the new and luxurious sanatorium of Hohenhonnef, 774 feet above sea-level, commanding an extended and charming view of the valley of the Rhine with its vine-clad hills. It was opened in 1892, under the direction of Dr. Meissen who had been for ten years a pupil of Dettweiler. It accommodates about 90 persons, and possesses all the newest and most approved hygienic appliances; as Léon Petit says, it is almost too luxurious. In wandering through its various rooms I discovered a dentist's establishment even. The smallest room has not less than 70 cubic metres air space. Besides the large *Liegehalle* running along the southern side of the main building, there are other smaller ones among the trees. Each reclining chair has a table and an electric annunciator beside it and an electric light above. By means of screens any patient can isolate himself if he desires. In the *Liegehallen* one notices various mottoes, as, for instance, *Verein Halbe Lunge* (the half-lungers' union). A large park and forest surrounds the building.

At dinner I was impressed with the healthy appearance and evident good spirits of the patients, and, as at Falkenstein, I hardly heard a cough. For pyrexia the rule is absolute, to remain in bed; and if any drug is considered necessary, lactophenin or phenacetin is

used, with an ice-bag over the cardiac region if the heart is rapid. For the medicinal treatment of cough, peronin or codeia is used; and for night-sweats milk and cognac, and sponging with aromatic vinegar and water. Every morning each patient, before dressing, is bathed by an attendant with spirit and water to which is added a little sea salt, and he is then rubbed dry. Creosote is not used. The average length of residence is three months; and about 15 per cent. are considered cured, and 68 per cent. improved. The cost is about the same as at the other sanatoria, from \$20 to \$25 a week.

To the above list of sanatoria in Europe I want to add two in America which in their methods and management closely resemble those of their European *confrères* — the Adirondack Cottage Sanatorium at Saranac Lake, under the direction of Dr. E. L. Trudeau, and the "Winyah," Dr. von Ruck's at Asheville, N. C. The former, Dr. Trudeau's, seems to be almost better known in Europe than in this country.

THE ADIRONDACK COTTAGE SANATORIUM.

It differs from the construction of the German sanatoria in that it is upon the pavilion plan, consisting of a central building and fourteen small separate cottages. These cottages are of one story and accommodate from two to ten persons, the greater number having a capacity of from four to five. Each patient has his own room opening into a central sitting-room, and the partitions between the sleeping- and sitting-rooms reach but seven feet from the floor, an arrangement which gives the patient the benefit of the entire air space of the cottage; the walls which separate the sleeping rooms, however, reach to the ceiling. In the main building are the dining- and general sitting-rooms, and the various administrative offices, and on the upper floor large rooms for patients. There is also a library, chapel, recreation pavilion, and doctor's cottage, and probably one of the best equipped laboratories for the study of tuberculosis in this country, all in separate buildings.

Patients are received in the first stages of the disease, or whenever, in the opinion of the examining physician; they are likely to be benefited by the sanatorium treatment, and can afford to pay no more than five dollars a week, which includes medical attendance. This, of course, does not pay expenses, and the deficiency is met by subscriptions from those interested in the charity. "Thus is presented," as Dr. Trudeau truly says, "to the poor man, or at least the working class of people, an opportunity for recovery which cannot be had by the rich man at any price. The outdoor method is applied to all patients, but the details of the treatment, and above all, the amount of exercise allowed in carrying it out, are regulated by the activity of the patient's disease, his nutritive condition, and more especially, his temperature record."

Little stress is laid upon the administration of drugs. Absolute rest in the open air is relied upon to reduce the pyrexia. The results equal, if not surpass, those obtained in the European sanatoria; about 24 per cent. are cured, and 84 per cent. arrested.

An extract from a private letter to Dr. Trudeau from one who had spent some days in his institution indicates the spirit prevailing there: "Your patients there," it says, "are fortunate indeed; and I guess they all know it, for a happier set of invalids I never saw. At my table none looked ill, and were as intelli-

gent, and refined and jolly a crowd as I have seen all summer. I have visited in my time many hospitals, asylums and homes, but none like this."

THE "WINYAH" SANATORIUM.

The Winyah Sanatorium, at Asheville, the excellence of whose climate for pulmonary diseases is generally acknowledged, is under the direction of Dr. Karl von Ruck, one of the leading phthisio-therapists of this country. The establishment consists of a large building accommodating about 100 persons, and connected therewith a bacteriological laboratory. The method of treatment is similar to that in the foreign sanatoria, and the results bear a favorable comparison. Tuberculin or its modified products are used in proper cases. This institution, like the German sanatoria, is for paying patients.

In conclusion, I desire to express my appreciation of all the courtesies extended to me by the gentlemen in the various hospitals and sanatoria I visited. I wish I could mention them all by name. Without their kind attentions, my visits would have been well-nigh fruitless. I cannot, however, forbear naming Professor Kobert, director of the Brehmer Sanatorium, who, with his assistant physicians left nothing undone to make my visit both instructive and enjoyable; also Drs. Römpel and Weicker at Görbersdorf; Drs. Dettweiler and Hess at Falkenstein; Dr. William Vanzyndyck at Hohenhonnef, and Dr. Paul Humbert of the Hospital Lariboisière, Paris.

One of the pleasures and privileges of the medical profession is the delightful interchange of courtesies which exists among its members in every land.

OBSERVATIONS ON MENINGITIS IN INFANTS AND CHILDREN.¹

BY A. H. WENTWORTH, M.D.,

Assistant in Diseases of Children and in Pathology in the Harvard Medical School.

(Concluded from No. 13, p. 292.)

PNEUMOCOCCUS MENINGITIS.

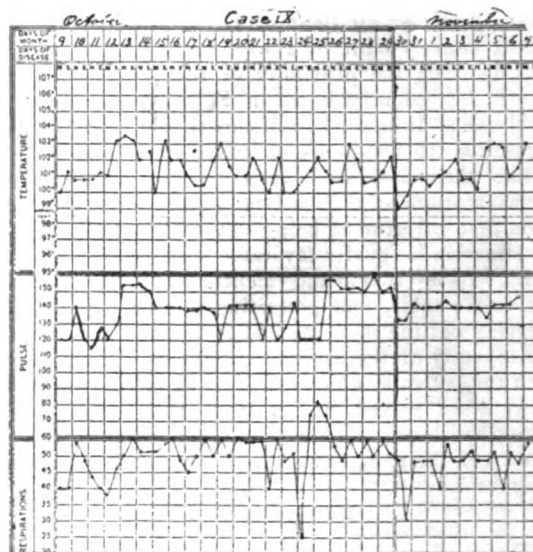
THE writer has had the opportunity of observing but three cases of meningitis due to the pneumococcus lanceolatus. Two of these cases were secondary to lesions in the lungs and pleura and the third was a case of primary pneumococcus meningitis. From such a limited number of cases it is impossible to deduce a clinical picture of the disease. It is fair to assume that in the secondary cases the clinical picture was modified by the original disease. In both of these cases cerebral symptoms did not appear until a day or two before death, and were quite insignificant at any time, considering the extent and character of the lesions in the meninges.

The case of primary meningitis was observed from the beginning, but the patient presented so few of the typical symptoms of meningitis that a diagnosis was not made during life.

It is impossible in a single case to determine how much the clinical picture was modified by the infant's age. From the literature on the subject it would seem as if primary infection of the meninges by the pneumococcus lanceolatus was infrequent. It is more than probable that the older descriptions of epidemics of

cerebro-spinal meningitis due to the pneumococcus are erroneous, and that the organism in these cases was the intracellular diplococcus, which was not recognized at that time.

CASE IX. Male, three years old. Entered the hospital on October 9th. The history was very incomplete. The child was said to have had measles at the age of one and one-half years and varicella and pertussis at two years of age. The present illness was said to have begun one month before he entered the hospital. During this month the patient was feverish, coughed more or less and showed symptoms of malaise. A physical examination made at the time of entrance into the hospital is as follows: "The child is very much emaciated and anemic. The respiration is rapid without much dyspnea. The expiration is accompanied by a grunt of pain. The expression of the face is anxious. The sensorium is clear. The mouth



shows the presence of an aphthous stomatitis. The throat is negative. Nothing abnormal is detected in the heart. The examination of the lungs detects slight dullness in the lower portion of the right back with moist râles and no marked modification of the voice-sounds, or respiration. There is some dullness over the upper part of the left lung in front, the limits of which are not very distinct. In the left back there is dullness from the inferior angle of the scapula downwards to the base and from the spinal column to the axilla. Moist râles are heard throughout the lung and the respiration is harsh and vesicular with prolonged expiration. There is a small area between the inferior angle of the left scapula and the spinal column over which bronchial breathing and increased voice-sounds are heard. The spleen extends about one-half inch below the border of the ribs in the left axillary line. There is no albumin in the urine."

The condition remained about the same for three days and then the patient did not appear to be so well. The temperature and pulse were higher. There was dullness at the apex of the right lung and bronchial breathing over the right scapula. After several days the signs in the right apex were not so marked. The general condition remained about the same. The temperature was irregular and not very high. On October 28th, nineteen days after his entrance into the hospital, the child appeared to be somewhat better. He was brighter; his appetite improved and he seemed to have less discomfort.

The improvement continued until November 3d, when there was a marked change for the worse. The signs in the lungs were about the same as at entrance except that the dullness in the right back was more marked. It was

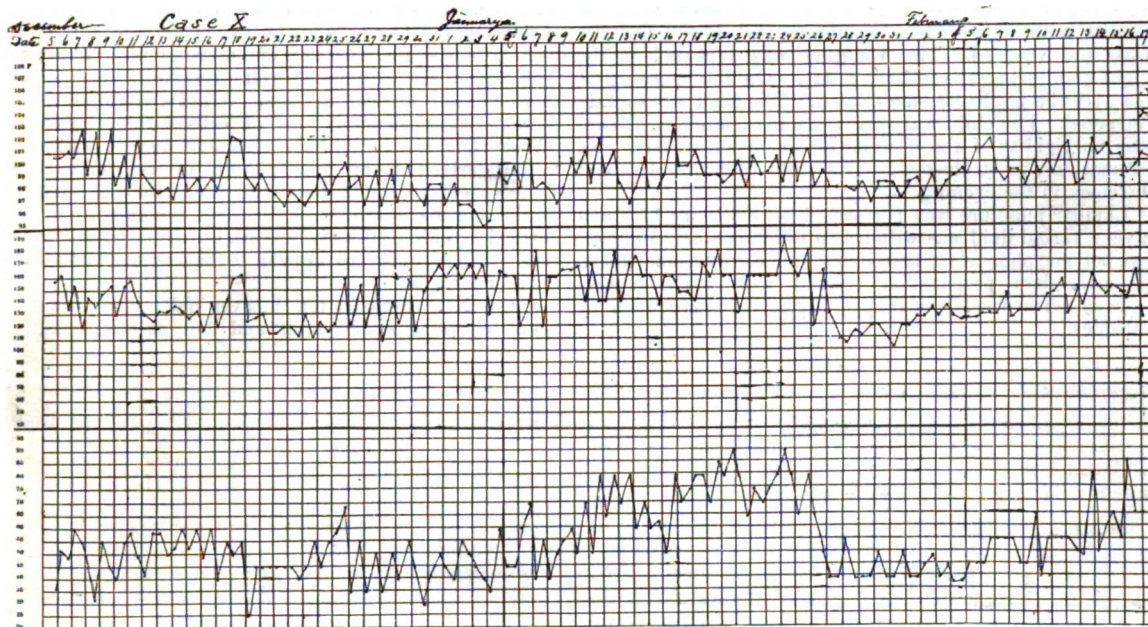
¹ From the Sears Pathological Laboratory of the Harvard Medical School.

difficult to make him take food and he was inclined to be drowsy and stupid. On the following day the temperature was higher. The pulse was very weak and stimulants were given subcutaneously. He vomited considerable mucus several times. The stupor increased.

On November 5th he became unconscious. There was no retraction of the head, or rigidity of the neck muscles. The respiration was labored. From this time he failed rapidly, and died quietly the next day. There were no symptoms of meningitis until three days before his death, and these symptoms were not at all marked until he became unconscious on the day before his death.

Autopsy (Dr. F. B. Mallory). The body is considerably emaciated but well formed. The heart is normal. Both

The glands in the groins are slightly enlarged. The intelligence is normal. The breath is very offensive. The nose and throat are negative. The tongue is coated. The mouth is negative. There are no evidences of rachitis. The heart's impulse is felt in the fourth space, just within the left mammary line. Dulness reaches to the sternum and begins in the third space above. Splenic dulness begins in the ninth space, left axillary line and the edge of the spleen is palpable a centimetre below the border of the ribs. Liver dulness begins in the fifth space, right mammary line, and the border and a portion of the upper smooth surface of the liver is palpable below the ribs. The abdomen is negative. Lungs: over the right front from the clavicle to the fourth rib and outwards to the axilla the per-



lungs are adherent over their whole extent by not very firm fibrous adhesions. At the base of the right lung posteriorly there is a flat cavity in the pleura about five centimetres in diameter containing rather soft, cheesy material with a small quantity of opaque whitish thick fluid. The pleural surfaces on both sides of this cavity are considerably thickened. There is no odor in the fluid. The left lung shows several rather diffuse denser areas. The spleen is enlarged and softer than normal. The kidneys are pale, the glomeruli are not injected. The stomach and intestines are normal. The liver is pale.

Head. The dura is tense and considerable fluid escaped on incising it. The under surface of the dura is covered with a thin, watery, yellowish membrane, which can be readily rubbed off. The meshes of the pia all over the brain and extending down the cord are filled with a watery, yellowish-gray fibrino-purulent exudation. Cover-glass preparations from the exudation in the pia and in the pleural cavity show numerous diplococci with capsules (*diplococcus lanceolatus*).

CASE X. Female, nineteen months old. Entered the hospital December 5th. The history was very unsatisfactory. The infant was breast fed for two months, and was then given milk and barley for several months. She had had a general diet for several months. She was said to have had measles at nine months and to have had a cough for six weeks. During the last six weeks she was feverish at times. The patient was seen by the writer for the first time on January 1st.

A physical examination at that time is as follows: "The child is under-developed and is very much emaciated. The skin is dry and scaling. There is marked anemia.

cussion has a deeper and somewhat tympanitic tone than over the corresponding area on the other side. The respiration over this area is bronchial but diminished in intensity and of an amphoric character. The right back shows some dulness from the apex to the base with a tympanitic quality blended with it. The respiration over this area is diminished in intensity and absent in places. It is bronchial in character. Over the left lung the respiration is harsh both front and back. Examination of the ears shows infiltration and loss of lustre in both drum membranes with a cicatrix in the posterior part of the right one." On the following day the child vomited about an ounce of greenish-yellow pus which was very offensive.

On January 3d the patient was aspirated in the second intercostal space in the right mammary line. The trocar was directed inwards and backwards toward the median line and was thrust into solidified lung a distance varying from one to three inches. Nothing was withdrawn. A second aspiration was made in the back in the sixth space, scapular line. The trocar entered solidified lung. Some air which escaped was very offensive. Subcutaneous emphysema developed and extended round to the axilla. No rise of temperature followed aspiration.

On January 7th an examination showed less dulness over the right back. The respiration was bronchial and not so distant as before. The condition in front remained the same. The emphysema had practically disappeared.

On January 24th there was diminished respiration over the right back and dulness over the entire back below the inferior angle of the scapula and extending round into the axilla. There was no displacement of the heart or liver. The intercostal spaces were not obliterated,

although not so evident as on the other side. There was a small abscess in the right axilla on a level with the fifth rib. There was no marked change in the physical signs except that the respiration was not so loud and the dullness was more evident. Aspiration was performed in the lower portion of the right back and a quantity of foul-smelling pus was withdrawn. The child was transferred to the surgical side and a portion of the sixth rib was resected. The cavity was irrigated and drained.

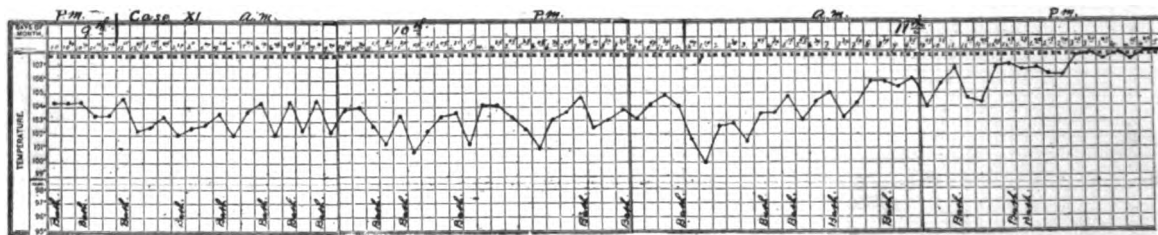
From January 25th until February 18th there was but little change in the general condition. The pus gradually lost its offensive character and diminished in quantity. The child took about the same quantity of food as before. On February 13th she appeared to be distressed. The respiration was more or less "grunting" in character. The temperature was 102° F. The abdomen was distended with gas. These symptoms subsided. On the 16th she vomited. The vomiting was repeated in the night and during the following day. On the morning of the 17th the pupils became dilated. The head was slightly retracted. The child was very weak but conscious. There was no rigidity of the extremities or hyperesthesia. No convulsions, no strabismus. The child died quietly about 9 o'clock in the evening.

Lumbar puncture was performed on February 17th and a very turbid fluid was withdrawn which contained numerous polymorphonuclear leucocytes and considerable fibrin. A cover-glass preparation stained with carbol-fuchsin showed numerous lancet-shaped diplococci surrounded by capsules.

the cord. The general appearance of the brain is as if it were covered with a layer of translucent jelly in which are opaque yellow streaks following the course of the sulci. (The brain was preserved for the museum and the ventricles were not opened.) Cover-glass preparations and cultures from the exudation covering the brain and cord show the diplococcus lanceolatus to be the only organism present. Cultures from the liver, spleen and kidney are negative.

Microscopic Examination. The brain was hardened and preserved in formalin. Portions from various parts of the brain were mounted in paraffin and stained with hematoxylin and eosin. There is intense purulent infiltration of the tissue of the pia-arachnoid. There is a small quantity of fibrin between the cells and about the vessels. The veins are dilated and many of them are occluded by red thrombi. The cells in the exudation are chiefly polymorphonuclear leucocytes, with here and there a few lymphoid cells. The nuclei are in general well preserved, but in places there is some nuclear detritus. All of the arteries in the sections show accumulations of cells within the elastica. These cells are large, have vesicular nuclei; and appear to be derived from proliferation of the endothelium. Leucocytes are found here and there among these cells. Diplococci are scattered throughout the exudation. The cortical layer immediately beneath the membranes is edematous. There does not appear to be any marked increase in the neuroglia.

CASE XI. Female, ten months old. The infant had been fed on modified milk and had gained steadily in



Autopsy (Dr. Wentworth). The body is very much emaciated. The heart, liver, pancreas, left lung, stomach and intestines are normal. The spleen is slightly increased in size; the trabeculae are distinct; the pulp is not much increased. The kidneys are normal in size; the capsules are not adherent; the cortex is opaque; the pyramids are dark red in color. The mesenteric glands are somewhat enlarged; in one of them there is a small calcified focus; the others are reddish-gray in color and translucent. The bronchial glands are enlarged; in one of them there is an abscess cavity about half a centimetre in diameter filled with pus. Cover-glass preparations of this pus show the presence of streptococci. One of the bronchial glands contain a small calcified focus. The pleura over the right lung is much thickened, in places fully two millimetres thick, and firmly adherent to the chest wall. At the lower portion there is an abscess cavity, the walls of which are covered with creamy pus. The lung is small and solid. On the outer and lower part of the lower lobe, corresponding to the axilla, there is an opening one and one-half millimetres in diameter, through which a probe passes into a bronchus. This opening connects with the abscess cavity in the pleura. The lung on section shows dense bands of fibrous tissue extending in from the thickened pleura and forming a coarse mesh work over the surface. In this mesh work the lung tissue is more or less well aerated and varies from pink to dark red in color. Many of the bronchi are surrounded by dense fibrous tissue.

Brain. The pia-arachnoid is edematous. The vessels are injected. Following the course of the vessels are streaks of yellow opaque exudation infiltrating the pia, but not on the surface. This condition is generally distributed over the vertex and base of the brain and extends down

weight. She had always been well, and was in all respects a normal and vigorous baby.

On December 24th she vomited, and it was found that she had taken several ounces of sour milk. On the following day she seemed well, but the dejections were not normal. During the next two weeks she appeared to feel perfectly well. Her appetite was good and she was playful and bright. The dejections during this time were not entirely normal. At times they were somewhat constipated.

On January 8th the infant was fussy and irritable, and did not take all of her food. On January 9th at 5 o'clock in the morning the baby vomited. The temperature was not taken, but she was not thought to have fever. The vomiting occurred again at 9 o'clock and again in the afternoon. The child took but little food during the day. The temperature was taken in the evening and was found to be 106° F.

A physical examination at this time is as follows: "The infant is well developed and plump. There is considerable stupor, from which the baby can be roused without difficulty. The skin is pale and gray. There is no efflorescence. The pupils are equal and react to light. The anterior fontanelle is two inches in diameter transversely and two and one-half inches antero-posteriorly, and pulsates. The tongue is slightly coated. The throat is negative. The lymph-glands are not enlarged. The respiration is rapid. The lungs are not abnormal. The heart-sounds are clear and strong. The heart's action is rapid and regular. The spleen is not palpable. The edge of the liver is palpable two inches below the border of the ribs in the right mammary line. The abdomen is soft and not distended. Palpation of the abdomen is negative."

On January 10th the stupor had deepened somewhat. The temperature remained high in spite of frequent baths. During the day the infant had five convulsions. The convulsions were tonic and clonic, and lasted about one or two minutes. There was no rigidity of the head, or tenderness in the neck, or elsewhere. The extremities were lax. The abdomen was slightly distended but not tense. The child roused from her stupor when handled. The pupils were equal and reacted to light. Nothing abnormal was detected in the heart or lungs. The ears were normal.

On January 11th the general condition was worse. The stupor was more marked. The extremities were somewhat rigid. There was no tenderness in the neck or spine. The head was not retracted. There was no recurrence of the convulsions. The pupils were equal and reacted to light. The lungs were not abnormal. A loud blowing systolic murmur was heard over the whole cardiac area, especially loud over the mitral area. The heart's action was regular and very rapid. The respirations were from eighty to ninety in a minute and assumed a Cheyne-Stokes type at times. The infant appeared unable to swallow. During the last few hours the infant moaned with expiration. The child died quietly at 5.15 P. M., January 11th.

Autopsy (Dr. F. B. Mallory). Heart. The valves and cavities are normal. The latter contain fluid blood.

Lungs. The lungs are downy to touch; pink in color; there are no areas of atelectasis or of consolidation; there is a little serous fluid in the right pleural cavity.

Spleen. About normal in size; dark in color; on section the follicles are distinct; apparently no increase in pulp; the surface is moist.

Kidneys. The kidneys are injected; on section the surface is moist; the glomeruli show as red points; uric acid infarction in the apices of some of the pyramids.

Peritoneal cavity. The small intestines are distended with gas, with here and there contractions of the gut; a moderate quantity of thin, greenish fluid in parts of the jejunum; a little semi-solid material in the cecum. The mesenteric lymph-glands are little if any enlarged. The lesser peritoneal cavity contains a small quantity of dirty brownish-black fluid surrounding the tail of the pancreas. No evidence of peritonitis is visible.

Esophagus. Just above the cardiac orifice on the right side the wall is softened in two longitudinal folds so as to be almost perforated; the adjoining mucous membrane is soft; there is no injection.

Stomach. One centimetre from the cardiac orifice, towards the fundus, there is a small perforation, three millimetres in diameter. The wall adjoining it is exceedingly thin and soft, consisting only of strands of muscular tissue. The remainder of the stomach walls appear to be fairly normal. The gastric contents resemble the fluid found in the lesser peritoneal cavity.

The intestinal mucous membrane is not abnormal.

Skull. The anterior fontanelle is open and large.

Brain. Over the convexities the meshes of the pia are distended and filled with a clear serous fluid, more or less separated into pockets by a yellow purulent infiltration especially of the upper layers of the pia. This infiltration extends in part diffusely through the pia but is especially noticeable accompanying each vessel of the pia in two parallel yellow lines, one on each side of the vessel. The infiltration extends on each side to the bottom of the longitudinal fissure, and into the fissure of Sylvius. At the base of the brain the exudation seems rather more serous in character and extends down the cord. The blood-vessels of the pia and of the brain are moderately injected. The brain tissue is quite soft and on section transparent and moist. The lateral ventricles are somewhat dilated.

Bacteriological Examination. Cover-glass preparations from the sero-purulent exudation of the pia show enormous numbers of lancet-shaped diplococci, often in short chains of four to eight, surrounded by perfectly definite capsules.

Cultures. Spleen negative. Kidneys negative. Liver: one colony of diplococcus lanceolatus. Lungs: numerous

pin-point colonies of micrococcus lanceolatus and a few colonies of streptococcus, many large colonies of staphylococcus aureus. Brain: two tubes, thirty-six hours after inoculation, show the surface of each tube covered with innumerable minute, transparent colonies; in one tube a single large white colony; cover-glass preparations show lancet-shaped diplococci.

Anatomical Diagnosis. Acute cerebro-spinal meningitis due to the diplococcus lanceolatus; post-mortem softening of esophagus and stomach.

Microscopic Examination (Dr. Wentworth). Portions of the brain were hardened in alcohol, mounted in paraffin, and stained with hematoxylin and eosin. Additional sections were stained by Weigert's fibrin stain and by Gram's method.

There is a marked purulent infiltration of the pia-arachnoid. Most of the cells are polymorphonuclear leucocytes, but there is in addition a certain number of large cells with considerable protoplasm and large vesicular nuclei. These cells are probably derived from proliferation of the endothelial and fixed connective-tissue cells. A variable quantity of fibrin is found especially about the vessels and to some extent between the cells. The cells of the exudation are all well preserved and stain sharply. Sections stained by Gram's and Weigert's methods show typical pneumococci in small numbers scattered irregularly throughout the exudation. Along the surface of the cortex a slight invasion with leucocytes has taken place. The most marked lesion in the brain tissue, however, is found along the blood-vessels entering from the pia. The perivascular lymph-spaces are dilated and often contain an abundant growth of pneumococci. In places leucocytes are found among the organisms, or in the tissue adjoining them. Occasionally small abscesses are present filled with more or less fragmented leucocytes, red blood globules and pneumococci; such foci have unquestionably arisen from extension of the organisms along the blood-vessels and the production of foci of necrosis and infiltration. Many of the small arteries show slight thickening of the elastica and an increase of cells between it and the lining endothelium; a condition already described in Case X, where it was more marked.

I desire to thank Dr. E. M. Buckingham for his kindness in permitting me to use several cases of epidemic cerebro-spinal meningitis for purposes of illustration, and for the opportunities which I had for studying the disease in the wards of the Children's Hospital during the epidemic of last spring.

THE PROPERTIES OF SNAKE POISON.

A REVIEW OF THE WORK OF FRASER AND CALMETTE.

BY A. K. STONE, M.D.,

Physician to Out-Patients, Massachusetts General Hospital, Assistant in Bacteriology at the Harvard Medical School.

INSPIRED by the results which have been obtained from the close study of bacteria and bacterial toxins, a number of observers have been led to turn their attention towards the interesting and fascinating subject of snake poisons. The similarity of their action to the bacterial poisons made it probable that similar methods of experimentation would give equally favorable results. Although the quantity of venom secreted by a given snake is much in excess of the amount to be obtained from many millions of bacteria, yet the difficulties are in many ways greater than those which beset the bacteriologist. The latter has to do with short-lived plants which can for the most part be grown easily under artificial conditions and reproduced at will for any number of generations; while the

difficulties in the way of collecting venomous snakes from the jungles of India, the banks of the Nile, from Australia and tropical America are clear to all.

From a practical side the subject has a most important bearing. Such statistics as are at hand show that in British India alone about 20,000 persons lose their lives each year from the bites of snakes, and that the loss of cattle and other domestic animals is still more severe. Explorers and travellers in tropical regions are much annoyed, both by the loss of valuable camp-followers, pack animals or hunting dogs, as well as by the possibility of danger to themselves when going through the thick jungles. Furthermore, none of the cures for snake-bite have any very great value. Some of the observers and students upon the subject go so far as to say that alcohol, ammonia, strychnia, stimulants, and the diuretics and diaphoretics which produce rapid excretion through the skin and kidneys, have no effect whatever upon the action of the poison. Others are willing to allow that they all have some value, and that cases near the border-line of the minimal fatal dose are often saved by the action of these various remedies, but agree with the first-mentioned observers, that when the bite has been severe, and the dose has been a large one, the drugs have very little or no effect upon the fatal course of the poison. Still a third class insists that they get sure results from the administration of various remedies. For example, strychnia in enormous doses is being recommended by Müller, of Australia, and many cases are quoted to prove the efficacy of this drug. The following is generally accepted, as the best treatment: If an arm or leg has been bitten apply, first of all, a tourniquet, then wash the part at once with a solution of permanganate of potash or chromic acid, enlarging the wound to induce free bleeding, and aiding the removal of the poison by sucking; or freshly made chloride of lime (1-60) can be injected around the marks of the fangs. These measures, if undertaken early, are often effective in removing or oxidizing the venom so that life is saved. The native doctor and snake-charmer often seem to have found some methods of successful treatment or of producing immunity. Too many well-authenticated stories exist, showing immunity and cure, to make it at all doubtful that these persons have methods which are doubtless of value. In all of these the head or poison glands or gall or blood of snakes plays a prominent part.

One thing which makes it difficult to estimate the value of any given remedy is the impossibility of knowing how large a dose of venom has been introduced. When a snake strikes, if successful, ten to fifteen drops of the poison are usually discharged from the poison gland into the wound; or, as Calmette has found by experiment with snakes kept in confinement, that from 100 to 130 milligrammes of fluid poison, which would yield 20 to 50 milligrammes of dried poison, is discharged at a time. Whether this latter small amount is due to the fact that the snakes have been kept in confinement is not stated.

If a snake misses the first time it strikes the venom is nevertheless discharged; then on striking a second time there is much less poison in the gland which can be injected into the wound. Hence a person may be bitten by one of the most venomous snakes and yet have only a few drops introduced, enough to produce very unpleasant symptoms, but not enough to cause death and consequently many cures may appear to be

effected by various drugs which are in reality due to the small dose of the poison.

A question of much dispute has arisen, as to the difference of the various poisons. It has been generally believed that there were several distinct varieties of poison, and that snakes should be divided by the peculiarities of their poisons; but Calmette has asserted boldly in the last few years that not only is the active principle of all snake poisons alike, but that it is identical in the poison of scorpions and lizards, and that the differences which have been noted in the action of the venom of various snakes was due to the presence of non-toxic albuminoid substances which are combined with the active poison in varying amounts. Thus the edema, the general hemorrhages and the hematuria which are observed for the most part as following wounds made by the less poisonous snakes are accounted for by the action of the practically inert albuminoids which can be removed by heat, leaving an active poison which can be dried and found to be of equal potency and similar action as similar products from the more poisonous snakes.

All the recent observers are agreed that an animal or person can be vaccinated against what would otherwise be a fatal dose by the subcutaneous introduction of small non-toxic doses of the poison. But the reasons therefore cause discussion. Fraser and Phisalix believe that antidotal properties reside in the venom along with the toxic. Fraser states his belief as follows: "that protection or immunity is chiefly due to the accumulation in the blood of an antidotal substance, which originates, at least in part, from the venom itself, and is normally one of the constituents of the venom." Calmette, on the other hand, denies this position entirely, believing that the antidotal properties are formed in the blood of the vaccinated animal by the organism itself. The experiments on this subject will be detailed later.

It has been found that the blood-serum of animals that had been vaccinated against snake venom had a certain antidotal power; though it was also observed that the blood-serum of several animals which were known to be immune to snake poison, the mongooses, for example, did not have antidotal properties. Fraser's experiments showed that the blood-serum of immunized animals gave him antidotal results and that the results were most marked when similar poison was employed and that in a less marked degree did the serum act to protect against the venom of other varieties of snakes. His method of experimentation was to mix the serum and the venom, having first determined what the minimal fatal dose might be, and then find out what was also the smallest amount of serum necessary to neutralize this dose of venom. *In vitro* he was able to get regular results, but when he turned from this thoroughly artificial method to an attempt at a practical working he found that it took a great deal more serum to save life; even if the serum was introduced half an hour before the venom. He was inclined to believe that too exaggerated an idea of the value of the serum might gain ground. According to his calculations, it would take at least 300 c. c. or 10 or 11 oz. of the strongest rabbit serum that he was able to produce to save the life of an average-sized man who had been bitten by a venomous serpent — an amount which would practically destroy the possibility of use.

By further experiments he found that the blood-serum of venomous serpents and their gall possessed antidotal properties, but to a much less degree than the blood-serum of immunized animals.

Fraser next turned toward the ingestion of poison through the stomach for the production of immunity. That snake poison was inert when taken into the stomach had been known for a long time. Some of us will remember the impression made upon us by the description of making arrow poison in one of Captain Mayne Read's books, when, after adding the poison sacs of several snakes to the mixture, it was tasted to see if it had the proper consistency. Also the old method of sucking the poison from the wound had demonstrated often that the venom was harmless when taken into the stomach, and some snake-charmers say that they have acquired their immunity by this means. The poison is not absorbed by the walls of the stomach, nor is it changed by the action of the gastric juice, but in the intestine it is rapidly decomposed and rendered inert before it can be absorbed. This fact pointed to a possible antidotal action in the bile and to a later series of experiments.

Fraser's experiments were as follows: A cat was fed upon cobra poison for a month and at the end of that period taking more than eighty times the fatal dose, had the poison been introduced subcutaneously. The cat was not made sick by this diet, and at the end of that period was found to be protected against one and one-half times the minimal fatal dose injected subcutaneously. White rats were fed 10, 50, 200, 500, 1,000 times the fatal dose of poison without harm. It was found that two hours were necessary to elapse in order to give protection and that when once acquired the animals would remain immune for five or six days. The results are of no practical value, as two hours is too long a time for the action of an antidote for such a rapidly working poison as snake venom.

From the consideration of the above facts and experiments, Fraser concluded that the antidotal powers of the blood-serum were due to a chemical reaction, because, for example, a certain amount of serum mixed with five times the fatal dose could not neutralize the poison, if they were left in contact but ten minutes, but would if the process was allowed to continue for twenty minutes, that is, a definite time must elapse for a reaction to take place. The power of the serum is not destroyed by drying, neither is it injured, but is rather increased in power by bacterial action(?). Finally, immunity cannot be due to phagocytosis, this process does not exist *in vitro* but is a living process.

During the past year Fraser has worked on the antidotal properties of the bile. He reasoned that the bile was what was poured over the poison as it passed unchanged from the stomach, and consequently it was probably the neutralizer of the poison. Also it was well known that bile of venomous snakes formed an important part of the medicines of the India snake-doctors, some of them even refusing to aid in the collection of bile on the ground that the English would learn too much. It was found that in the same way as blood-serum of immunized animals, the bile of poisonous serpents mixed with the poison prevented lethal doses from producing death, and the amount needed is only slightly more than the blood-serum. The bile of innocuous snakes was also tried. Most of these have rudimentary poison-glands and they are immune against the bites of the venomous snakes, and their

bile was found, as would be expected, anti-venomous, but to a less extent than the poisonous varieties. Ox bile was found to have neutralizing power, but only about one-seventh the strength of that of the venomous snakes; while the bile from rabbits and guinea-pigs was still feebler. But a decided obstacle to the use of bile as an antidote is the fact that bile itself is poisonous when introduced subcutaneously, and some of the animals experimented upon, though saved from the snake poison, died after four days, with symptoms of bile poisoning rather than snake poison.

An attempt was made to get at the active principle of the bile, and for this purpose bile of a puff-adder was treated with absolute alcohol, and after further treatment it was found that the portions of the poison soluble in alcohol had little anti-venomous properties. The portion of the bile insoluble in alcohol was treated with water and a dark green residue was left on evaporation, weighing about one twenty-sixth of the original bile. White rats were used for experiments; and when it had been determined that the amount of crude bile of the puff-adder sufficient to neutralize the minimum lethal dose of cobra poison was .00025 mg. per kilo., the amount of the aqueous extract of the alcoholic precipitate necessary was but .00001 mg. per kilo. The proportion here to the quantitative result is very striking. These results, it is to be borne in mind, were *in vitro*, and the quantity necessary to act on the living organism Fraser calculates as 1,600 to 2,000 times greater.

Calmette, who is the head of the Pasteur Institute at Lille, has been at work for a number of years upon the subject of toxins, and especially those of snake venom. In July of 1896, before a committee of the Royal College of Physicians and Surgeons, of which Prof. Sims Woodhead was the chairman, Calmette made the following demonstration of the antidotal power of the serum of horses treated by repeated and increasing doses of snake venom:

(a) Six rabbits were taken and three cubic centimetres of the serum was introduced into the vein of the ear; five minutes later a dose of poison calculated to kill the animals in twenty minutes, if unprotected, was injected into these rabbits and also into two control animals. These latter died in sixteen and seventeen minutes respectively, while the six protected rabbits survived and remained well, though under observation for a number of months.

(b) Eight rabbits were taken, and each was injected with poison calculated to kill in about two hours time. One-half hour later three cubic centimetres of serum was introduced into the ear vein of two of them. At the end of an hour a similar amount was injected into a second pair, and at the end of an hour and a half a third pair were treated with five cubic centimetres of the protective serum. One of this last pair of rabbits died during the protective injection and the other about fifteen minutes later. The two control rabbits died in one hour and forty minutes, and one hour and forty-five minutes; those, however, that had been injected at the end of one-half and one hour lived.

(c) This experiment was to test the immunizing property of the serum. Three cubic centimetres were introduced intravenously, and fifteen minutes later a dose of poison which would be expected to kill the animal in twenty minutes was introduced and the animal lived.

(d) A dose of poison sufficient to kill in twenty

minutes was introduced by the ear vein, and three minutes later three cubic centimetres of the protective serum was injected by the other ear vein; and the animal remained alive.

Convinced by these experiments, the committee recommended the use of the serum in India and Australia. And for more than a year the Institute at Lille has been sending out its serum to various parts of the world, and a number of favorable reports have begun to be received by Calmette, of which the following are examples:

CASE I was a boy working in the laboratory at Lille. He incautiously opened a box which contained a newly arrived lot of snakes and was promptly and severely bitten on the index finger. Almost immediately the hand and forearm became swollen and edematous. An hour later there was insensibility of the forearm and hand, great pain in the upper arm and neck and axilla, and there was nausea. Twelve cubic centimetres were injected; and from that time the symptoms began to subside, and by the next day the sensibility in the hand had returned, the edema was less, and the boy was practically all right. A woman who chanced to be bitten by the same lot of snakes died in two hours, untreated.

CASE II. A native camp-follower, a big man, was bitten in several places. One half-hour later he was seen, alarming symptoms having already set in. He was nearly comatose, with subnormal temperature and pulse of 140, which was weak and irregular. There was difficulty of respiration, and vomiting, spasm, pain in the legs and much edema. He was given an injection; the next morning was much better; and in two days returned to his work.

CASE III. A girl of thirteen was bitten by an Egyptian cobra, the asp of Cleopatra. Three or four hours later she was brought to the hospital in Cairo in a state of complete collapse, apparently a most desperate case. She was insensible; there were no reflexes, and the pupils were dilated and did not react to light. Twenty cubic centimetres of the serum were given at 7.30, and by 11 o'clock she seemed better and could answer questions; the pulse was 140. A second dose of 10 cubic centimetres was given, and within twelve hours she appeared to be out of danger.

So far reports have been received showing favorable results from similar cases that have been bitten by the following venomous snakes: (1) the *naja-tripudians* or cobra of Indo-China, (2) the *bungarus cæruleus* of India, (3) the *naja-haje* or asp of Egypt, (4) the *naja-noir* of West Africa, (5) the *bothrops lanceolatus* of Central America.

These favorable results lend further credence to Calmette's position that the active toxic property of all venoms is the same. To those who are interested in methods by which such serum is obtained and its strength determined, a brief statement of Calmette's methods may not be out of place. First of all he determines the dose of poison which is required to kill a rabbit in twenty minutes. Next he injects either just before or within ten minutes of the time the dose of poison is given one-half, one, or two cubic centimetres of the serum. If he finds, for example, that one cubic centimetre of serum is sufficient to save a rabbit weighing two kilogrammes, he says that this serum contains 2,000 anti-venomous units. He makes and sells nothing less than serum containing 1,000 units, and for export to the countries where the most poisonous ser-

pents are found he uses serum of the strength of 4,000 units. The dose therefore for a man of 75 kilogrammes is about 75 grammes or three ounces of the 1,000-unit serum. The serum appears to bear transportation and variations in temperature and to keep indefinitely in properly sealed bottles.

Incidentally, Calmette made a number of other interesting observations. He found, like Fraser, that his vaccinated rabbits remained immune for a considerable time; for example, one that had received finally a dose of 60 milligrammes of poison, or sufficient to cause death in 120 non-vaccinated rabbits, was able at the end of eight months to resist a dose which was capable of killing three rabbits. Also, animals which had become immunized rapidly lost their immunity within a few days. A female rabbit was found able to transmit her immunity providing the gestation took place during the height of the immunizing period, and the young retained this immunity for two months. On the other hand, an immunized male rabbit was unable to transmit his immunity to his offspring.

In attempting an analysis of the poison, Calmette, as has been said, agrees with certain observations made by various observers, but gives different interpretation to the facts. For example, he acknowledges that heat reduces the action of the poison. But he will not allow that there is any change brought about by the action of heat by which the poison is transposed into a vaccine, as Fraser and others have supposed, but that the toxic power is simply reduced and when injected into an animal the result is simply that of introducing a small dose of normal virulent poison — antidotal properties developing in the serum of the organism. Phisalix, of Paris, in 1896 published some researches, conducted by passing venom through an unglazed porcelain filter. He found that the filtrate may be injected into rabbits in doses three or four times as great as the normal fatal amount, and the animals do not die, but are made immune. From this Phisalix concludes that he removes the active toxic principle by the aid of the filter, while the antitoxic material passes through the porcelain. Calmette maintains that this deduction is not warranted, and that the results obtained are misleading. He makes a modification of the experiment as follows: A gramme of venom was taken, dissolved in water, heated to precipitate the albuminoids, and filtered to remove them. The precipitate collected from the filter was found to be harmless and it was possible to inject the whole amount of albuminoid material without producing death. The filtrate, on the other hand, was strongly toxic, and the fatal dose corresponded with the amount of the untreated poison. The filtrate was further dialyzed in order to remove all the salts. The residue was then evaporated to dryness over H_2SO_4 , and he found that the material left was of great toxic power, as was shown by the fact that while the normal venom requires a dose of 0.6 of a milligramme to kill a 2,000-gramme rabbit in twenty minutes, the same result was brought about by a dose of this active toxic principle of .01 of a milligramme.

Comparing his results with those reported by Phisalix and confirmed by his own observation, he concludes that what takes place during the process of filtration is that the porcelain filter at first lets a small amount of the poison through its pores but quickly becomes coated by the albuminoid materials of the poison and as a result is transferred from a filter into a dia-

lyzer and the toxic principle no longer passes through but only the salts of the poison; that the filtrate, so called, when injected, simply acts as a weak dose of poison.

The filtrate obtained after precipitation by heat gives the biuret and Millon's reactions, but does not give the reaction of xantho-proteids. From such imperfect data it is impossible to state exactly what sort of an organic compound is present as the active principle of the snake poison.

From the above meagre report of the painstaking work that has been done upon this subject, it will be seen that decided steps in advance have been made in the past few years in our knowledge of the nature of snake poison, the most important of which is the assertion that all poisons are alike, and second, that serum from horses made immune to snake poison by the venom of the most poisonous snakes has the effect of counteracting the poison of all varieties of snake venom, and that the serum can be obtained of such strength and concentration as to make it a practical remedy. The short time, a year and a half, that this serum has been in general use makes it impossible to speak definitely about the matter, but the number of favorable cases already received makes it probable that a real antidote to snake poison has at last been found; though whether it can be produced in sufficient quantities to supply the demands of the tropics is not as yet demonstrated.

Clinical Department.

GLIOMA OF THE BRAIN.¹

BY E. S. BOLAND, M.D.

J. W. P., forty-six years of age, married, had to give up work in September, 1896. He gave a history of fair general health, though never rugged physically and not very ambitious mentally, though he had a fair education and when younger had preached some, and up to the time of his break-down he sung a correct and acceptable tenor in a church choir. For the past seven years, until September last, he had been employed as general utility man in one of our large manufacturing houses, and was a faithful and efficient servant, well thought of by his employer. For some months before he broke down, his wife and daughters noticed that he was very forgetful, and also that he was more irritable though he would soon get over his annoyance and apologize if he, during the flurry, had spoken hastily. In addition, during most of the past seven months he complained more or less of head pains, which he located in the vertex and occiput. He would wet his pillow with cold water before retiring, in the fancied belief that it afforded relief to the cephalalgia.

When I was called to him it was near the end of September, 1896. He was sitting up, but complained of vertex pains and had a temperature of 101.5°, pulse 96. As there was anorexia and some coating of the tongue, I was on the lookout for typhoid. Under rest and antipyretics he improved so much that I gave up the typhoid theory, and he went back to work after three or four days, but only for a day or two.

Any effort was too much for him, and extreme debility and his old head pains returned.

At this time, October 18, 1896, there was weak fast pulse, slightly elevated temperature, sluggish bowels, and much vertex heat and pain complained of. Mental state was almost normal; no localized paralysis or impairment of special senses; though his family thought his sight was not as good as formerly. There was more or less vomiting at this time. I inclined to the belief that he had cerebral meningitis, a view that Dr. C. F. Folsom, who saw him about the end of October, could not indorse.

He was admitted to the Boston City Hospital November 2d, where he remained eighteen days, admitted as suffering from hysteria, and discharged with diagnosis of cerebral tumor. No operation was advised fortunately, and he returned to his home about November 20th.

After his return from the hospital his symptoms grew rapidly worse, and he soon became totally blind and lost all sense of smell, though his hearing remained first-rate. His stomach grew more unstable, less and less food was retained, and morphia had to be given to relieve the cephalalgia and wakefulness.

About January 1st he was found with the left side totally paralyzed; there was incontinence of urine and feces, and no perception of light or odors. Bed-sores developed, and though still able to speak, he sank fast, and died January 26, 1897.

At the autopsy a clear cyst, as large as a dried date, lay on the floor of the right lateral ventricle just above the corpus striatum, whose surface, however, it did not depress or in any way give evidence of injurious pressure to the surrounding parts.

The left occipital lobe was occupied by a new growth that at the posterior extremity was so firmly adherent to the dura that it was somewhat torn and on removal the dura had to be removed with it.

Dr. W. F. Whitney's appended report will best describe it:

An illy-defined mass, replacing and infiltrating the posterior part of the occipital lobe for a distance of about ten centimetres in length and the entire breadth. Its anterior edge was about the line of the parieto-occipital fissure. The outer surface was irregular and ragged, and at the posterior part was adherent to the dura mater. The section surface showed a soft, grayish mass, dotted with dark red (hemorrhagic) spots, and yellow opaque (necrotic) areas. (The brain was torn and lacerated when received, probably during removal, from the very soft character of the growth, so that a more exact localization was impossible.)

Microscopic Examination.—The structure was found to be a growth of small cells of irregular shape, with very fine prolongations associated with them, and which apparently passed between them, giving to the whole an aspect of very closely felted cells and fibres. An occasional ganglion cell could be found in the mass, and the transition into the intact brain tissue was perfectly gradual.

Diagnosis.—Small-cell glioma of the right occipital lobe.

I report this case for information. Why was this man blind and why did he lose the sense of smell while hearing was intact? Is it usual to find in cerebral pathology as large an amount of brain tissue involved and still giving so little evidence until so late in the disease?

THE number of cases of, and deaths from, typhoid fever in Philadelphia greatly decreased last week.

¹ Reported before the Boston Medico-Psychological Society, March 18, 1897.

Medical Progress.

REPORT ON PROGRESS IN THORACIC DISEASES.

BY GEORGE G. SEARS, M.D.

A CASE OF INNOMINATE ANEURISM TREATED BY ELECTROLYSIS THROUGH FINE GOLD WIRE.¹

STEWART reports the autopsy on a case of a very large innominate aneurism, which had passed beyond the stage where operation or medical treatment could hope to effect a cure, and in which he had employed galvanism for one hour and a quarter forty-one months previously, a current of 85 milliamperes being passed through ten feet of fine gold wire introduced into the tumor through a hollow needle. Death resulted from cerebral thrombosis, the result of advanced endarteritis. The aneurismal sac was approximately the size of a fetal head at term and was completely consolidated with organized coagula, in which the coils of wire lay. The sac itself was very firm and wholly solidified, and when cut into was found to be completely occupied by organized material in the interstices of which were found the coils of gold wire.

The writer has now treated two other successful cases in the same way; and these, in connection with a successful case under the care of Dr. Hershey of Colorado, show results which are sufficiently suggestive to engage the attention of the therapist.

CASE OF GASTRIC ULCER PERFORATING INTO THE PERICARDIUM.²

Fenwick reports a case of such rarity that a brief abstract is given:

The patient was a man, fifty-five years old, who had never complained of any symptoms of gastric disease, and who was apparently in his usual health. Immediately after finishing a meal, which consisted of tea, fish, and bread and butter, he rose from the table complaining of pain and palpitation and died in about a minute.

The interesting point of the autopsy was that the pericardium was found to contain some particles of fish and several ounces of tea, which smelled of whiskey. On the lower surface of the pericardium a small aperture was discovered, admitting a stout probe which passed downward through the diaphragm into the abdominal cavity. The heart itself weighed thirteen ounces and was extensively infiltrated with fat. The anterior surface of the stomach was found to be firmly adherent to the under surface of the diaphragm. On opening the viscera a chronic ulcer, the size of a shilling, with indurated edges was seen to be situated about the centre of the lesser curvature. From the base of the ulcer a sinuous track led upwards and to the right through the substance of the pericardium. All the other organs were apparently healthy.

SURGICAL TREATMENT OF SUPPURATIVE PERICARDITIS.³

In a paper with this title, Roberts gives an epitome of 85 cases of purulent pericarditis treated by incision, the earliest of which is reported by Hilsmann, who operated in 1844 with success. He says that pericardotomy and provision for thorough drainage are

always demanded by the presence of pus in the pericardial sac, the inutility of tapping, even if repeated, being shown by numerous recorded cases.

Puncture and aspiration may afford temporary relief, but free exit for the pus must be maintained for a varying length of time, until the internal surfaces of the cavity become modified or mutually adherent to insure cure. The prognosis under these circumstances is good provided the operation is done early and no serious complications have preceded or followed the surgical treatment, while the results obtained by incision and drainage in tubercular peritonitis suggest that the same treatment in tubercular pericarditis may lead to a permanent cure.

Of the 85 recorded cases 15 recovered and 20 died, a ratio of nearly 43 per cent., while, if those known to be septic are excluded, only 10 died.

Incision has the advantage over aspiration in reducing to a minimum the danger of wounding the heart, and the author is inclined to believe that incision is better than aspiration even in cases not supposed to be purulent.

He also recommends diagnostic incision in cases where it is impossible to distinguish between pericarditis with effusion and dilated heart.

He considers the best points for aspiration to be either close to the base of the ensiform cartilage in the fossa between it and the seventh left costal cartilage, or in the fifth left intercostal space from two to two and one-half inches to the left of the median line.

For the technique of the operation for free incision the reader is referred to the original paper.

HEMORRHAGIC PERICARDITIS.⁴

Ebstein reports two cases of hemorrhagic pericarditis, the first of which occurred in a man fifty-one years old, who had been ill two and a half months previously with a right-sided pneumonia. Four weeks before he had been taken with sudden pain in the middle of his chest. He failed gradually up to thirty-six hours before his death when he suddenly collapsed. Neither the symptoms nor signs of pericarditis were found and a diagnosis of dilatation of the heart with great muscular weakness was made.

At the autopsy the pericardium contained about 1,300 c. c. of bloody fluid, containing clots. The difficulty in diagnosis resulted in part from the fact that no etiological moment was discovered and that friction sounds were never present, while the absence of apex beat was readily accounted for by the cardiac weakness. Dulness in the cardio-hepatic angle, which has the greatest significance in the beginning of an accumulation of fluid in the pericardium, was unfortunately not sought for during the last two days, but had been previously absent.

Etiologically, Ebstein cannot rule out a connection with a previous pneumonia, while it is also probable that the fatty heart may have had some influence in its development. He considers it probable that the patient had suffered for some time from latent pericarditis and that the severe symptoms of sudden onset which terminated the disease were probably the result of a hemorrhage into the sac.

The second case was a man, fifty-nine years old, who had suffered for about nine months from thoracic symptoms. The signs showed retraction of the lung

¹ British Medical Journal, August 14, 1897.

² Lancet, August 14, 1897.

³ American Journal Medical Sciences, December, 1897.

⁴ Dent. Arch. f. klin. Med., Bd. ivl.

on the left side, with a pericardial effusion. Section showed a diffuse sarcoma of the left primary bronchus with metastatic nodules in various organs, of which the most interesting in this connection was the pericardium, which contained a hemorrhagic fluid. He says that in chronic, frequently recurring inflammation of the pericardium, as well as of other serous surfaces, the effusion is more apt to assume a hemorrhagic character than under other conditions, but individual peculiarities are not without influence, as hemorrhagic exudates are more common in old persons. Of special importance in the production of this characteristic is the nature of the illness in consequence of which pericarditis results, for apart from tuberculosis and malignant disease of the pericardium, it is more apt to accompany illnesses which are associated with a hemorrhagic diathesis, acquired as a result of a toxic or more frequently an infectious process. The latter is a much more potent factor than a congenital tendency to bleeding, as hemophilia apparently does not lead to the production of a bloody fluid in inflammation of any of the serous surfaces.

It seems probable that some special inflammatory irritation is needed, which is found less in the pathogenic organisms themselves than in their products. Those cases of traumatic pericarditis with bloody effusion, when foreign bodies have penetrated the pericardium, may be due to an infectious process or to bleeding into the pericardial sac. Chronic alcoholism appears also to have a special tendency toward the production of such hemorrhagic effusions, but in none of these cases does it follow that because a hemorrhagic pleurisy may be coincidentally present that the fluid in the pericardium should be bloody, even when both rest on the same etiological basis.

Treatment by aspiration in these cases usually proves of little value, largely as a result of the underlying cause, while remedies directed toward the original disease are equally unsatisfactory. Prophylactic measures, he is inclined to think, may be useful in certain circumstances and in acute rheumatism, which is the most frequent cause of pericarditis, he believes, although unable to prove it mathematically or statistically; that the salicylates are of considerable value in warding off this complication and he is in the habit of giving them in small doses for long periods to patients who show a tendency to relapse.

NEUROPATHIC DYSPEPSIA AND ITS CORRELATIONS WITH DISTURBANCES OF THE RHYTHM OF THE HEART.⁵

Sansom, in a paper on this subject, which is too long for an abstract, reaches the following conclusions:

(1) Essential tachycardia is not accompanied by dyspepsia.

(2) Paroxysmal tachycardia and the forms of tachycardia accompanied by signs, even slight, of Basedow's disease are very frequently associated with crises of dyspepsia.

(3) Extreme cardiac arrhythmia often occurs without manifestations of dyspepsia.

(4) Gastro-intestinal irritations do not produce cardiac arrhythmia without the concurrence of predisposing causes.

(5) Cardiac arrhythmia often replaces tachycardia in Basedow's disease. In such cases paroxysmal dyspepsia is frequent.

(6) Well-marked bradycardia may exist without signs of dyspepsia.

(7) Paroxysmal bradycardia is associated with crises of dyspepsia, and these crises occur in some cases of persistent bradycardia.

(8) There is no defined relation between dyspepsia and the structural diseases of the heart which sometimes are manifested in cases of disturbed heart rhythm.

(9) It is most probable that all forms of disturbed rhythm of the heart are due to marked affections of the nerve-element at the origin or in the course of the vagi nerves, or the nerve mechanism of the cardiac reflex in the upper part of the spinal cord.

(10) The attendant dyspepsia is due to an extension of the disturbance to the areas of origin or course of the gastro-intestinal branches of the vagi nerves.

(11) All such alterations of the cardiac reflex nerve mechanism, as well as the various disturbances of digestion, may be due to the toxic agencies of influenza or allied forms of infectious disease.

BRADYDIASTOLE AS A PROGNOSTIC SYMPTOM IN AFFECTIONS OF THE HEART.⁶

Huchard calls attention to the peculiar rhythm of the heart which he calls bradydiastole, consisting of a considerable prolongation of the diastolic pause. The two first sounds are very near together, scarcely separated by the short silence, the duration of which is considerably diminished, while the long silence has gained in duration. Both sounds frequently present an abruptness which is very distinct in character, while the cardiac impulse has the appearance of strength.

It may be observed, though in slight degree, in comatose conditions, in grave cerebral hemorrhage, in uremia, etc., and is almost a normal occurrence in aortic insufficiency. It is not of great importance so long as the fibres of the myocardium are not very much altered, but when the cardiac muscle is invaded by sclerous tissue and can react only incompletely upon the mass of blood, it is allowed to dilate more and more, and under such conditions bradydiastole becomes a sign which is often premonitory of cardiectasis. Systole is performed abruptly and rapidly, and this abruptness becomes itself an indication of extreme weakness of the heart much more than the attenuation of the first sound, on which physicians have insisted too much, its prognostic importance being singularly exaggerated.

He has observed this peculiar rhythm at the approach of the death struggle and during its continuance, and is of the opinion that it is a premonitory symptom of approaching death in other affections as well as in heart troubles; but his observations are not yet sufficient in number to warrant him in making a positive and definite statement in this respect. He expressly affirms, however, that this symptom is of great gravity in digitalis poisoning and in the course of asystole. From many facts observed he deduces the following conclusions:

(1) When in the course of digitalis poisoning or in the last stage of asystole in heart affections the bradydiastolic rhythm is observed continuously for several hours, and especially for several days, it is the precursory symptom of a progressive and ultimate cardiac dilatation.

⁵ *Lancet*, August 28, 1897.

⁶ *Jour. des Pract.*, October 30; *New York Medical Journal*, November 20, 1897.

(2) In these conditions digitalis no longer realizes its anti-asthmatic rôle; it becomes, for obvious reasons, inefficacious and even injurious, principally because it contributes to lengthen the diastolic pause still more.

He considers this symptom of the greatest importance by enabling the physician to foresee and sometimes prevent the progressive dilatation of the cardiac cavities. It shows that in these cases the heart really receives at each of its revolutions much more blood than it can throw out, and indicates that digitalis should be absolutely proscribed since it increases the length of diastole.

It shows, finally, that the two therapeutic indications consist in combating by early venesection the obstruction of blood in the ventricular cavities, and in exciting the myocardium, which is in danger of extreme weakness and of rapid dilatation, with large doses of strychnine and sparteine and by hypodermic injections of caffeine and camphorated oil.

SEROUS PLEURISY.[†]

Glaeser, in the course of a long and interesting article on this subject, gives a critical review of the various remedies which have been advocated for the treatment of pleurisy, and comes to the conclusion that, practically and theoretically, they are of doubtful value, both in the prevention of the accumulation of the exudate and in hastening its absorption.

He gives an analysis of 209 cases, of which 142 were discharged well, 19 relieved, 38 not relieved, while 10 died.

In 26 of the cases, in spite of high fever, the amount of urine was not diminished, and was even increased, while it was found that the absorption even of large amounts of fluid might occur with diuresis not above the normal or even below it, while in certain cases the fluid failed to be absorbed and even increased with a marked diuresis. In such cases the vascular system was probably so overfilled that a long period of diuresis was required to relieve it before the pleural fluid could be drawn upon.

Usually, the absorption of the fluid was closely connected with the fall in the temperature, but exceptions often occurred and not rarely absorption took place in spite of persistent fever. At other times, it began long after the fall of the fever, while in others in spite of a normal temperature, the exudate remained unaltered.

The first class has a distinct bearing on the question of puncture, which was performed in 89 of these cases, in 23 of which it was performed in the febrile period, while in four it had to be repeated. Of 14 cases without fever, so treated, repetition was required in two.

In practically all of his cases, puncture was done, if not because the patient was in immediate danger, at least for the relief of dyspnea.

He does not consider aspiration as indicated in serous cases. It is at least superfluous if not positively harmful, since it is the quantity of the effusion and not its quality which demands attention; as, if the pressure is negative, the presence of fluid is a matter of no great importance, since it can exercise no influence on neighboring organs, while if the pressure is positive, aspiration is unnecessary.

He uses a trocar, which is pushed through the blind end of a condom and fastened with thread, the walls of the condom, being wet, act as a valve in preventing

the ingress of air and offer no obstacle to the flow of the fluid. He has treated five cases by permanent drainage, two of which died, but this was to be expected under any form of treatment. Two others recovered, one of which was apparently a hopeless case. The fifth died of empyema of the other side, which was unfortunately overlooked.

He does not now consider the prognosis in hemorrhagic pleurisy as bad as he once thought, as the presence of blood is often due to a simple process, analogous to a hemorrhagic pachymeningitis, or to a hemorrhagic diathesis, as well as to malignant processes. Of the nine cases in this series six were cured, although some of them had tubercle bacilli in the sputum.

THE DIAGNOSIS OF MALIGNANT DISEASE OF THE PLEURA FROM THE CHARACTER OF THE EXUDATE.

Warthin[‡] says that, if we can judge from the literature on the subject, but few careful examinations have been reported of the cellular constituents of the exudate in cases where malignant tumors of the pleura and peritoneum were present, although much has been done with the chemistry of these fluids. He reports a case where the diagnosis of a spindle-cell sarcoma of the pleura was correctly made before death from the aspirated fluid. He says that from a histological study of the sediment of many cases of effusion into the peritoneal, pleural and pericardial cavities, the following points seem worthy of emphasis:

(1) In all cases of this kind where fluid can be obtained by exploratory puncture, cover-glass preparations should be made by fixing in alcohol and ether immediately after the withdrawal of the fluid from the body in order that the mitoses may be preserved.

(2) In the early stages of simple pleurisy the sediment contains endothelial cells and no fibroblasts. The endothelial cells may be desquamated in large pieces.

(3) In fibrinous pleurisy, tuberculous or septic, the sediment contains, in addition to endothelial cells, numerous fibroblastic forms. In later stages, when adhesions are forming, the endothelial cells may be entirely absent, and only fibroblasts be found.

(4) In the diagnosis of sarcoma of serous cavities, the character and number of the cells and the presence of numerous mitoses are the points upon which it must be based. It is, of course, evident that the quickly growing and soft forms of sarcomata are the ones most apt to lead to the presence of cells in the fluid. The tendency of all sarcomata to break down after reaching a certain growth makes it extremely likely that in most cases free cells will be found. The diagnosis of the spindle-celled sarcoma is easy, from the occurrence of large numbers of spindle cells of similar size and shape, showing fewer branching processes than fibroblasts, and containing more mitoses. In the round-cell forms, the tumor cells are to be distinguished from the endothelial cells by their size, character of nucleus, and the relation of the nucleus to the protoplasm. The presence of mitotic forms will again be the most important point; in the small round-cell sarcoma, these are not so easily seen. The greatest difficulty will be in the differentiation of the cells of a polymorphous-celled sarcoma from the fibroblastic forms found in fibrinous exudates. Aside from the general character of cell and nucleus, the presence of division forms

[†] Therap. Monatsh., 1897.

[‡] Medical News, October 16, 1897.

must in all cases be looked upon as the most important point.

In conclusion, therefore, the presence of numerous cell-division forms in the cells of the sediment of serous exudates may be taken as strong (perhaps conclusive) evidence that the effusion is due to the presence of a new growth, inasmuch as mitoses are but rarely found in the cells of purely inflammatory exudates.

THE SPUTUM IN CARCINOMA OF THE LUNGS.⁹

The classical symptoms of cancer of the lung consist in a unilateral consolidation of the lung leading either to dilatation or retraction of the thorax, in symptoms of irritation in the bronchi, as shown by cough and expectoration, in irritative phenomena in the pleuræ producing serous, fibrinous, hemorrhagic or purulent exudates, in pressure symptoms on neighboring organs, especially on nerves and veins, and finally in the progressive cachexia.

Such symptoms, however, do not develop during the earlier stages, and here, according to Hampeln, an examination of the sputum possesses much diagnostic value.

Bloody expectoration without being positively pathognomonic, since it occurs in such conditions as chronic tuberculosis, infarction of the lungs and croupous pneumonia, is a most important sign since other conditions are usually easily eliminated.

It consists most frequently of small amounts of blood which are expectorated from time to time, but these small transitory hemorrhages are so much the more suspicious as they occur but rarely in other conditions at the time of life when cancer is common. More rarely bloody expectoration, but not copious, is observed during a course of several months and even up to the time of death.

The bloody character of the expectoration, its tough consistency and its short duration, he considers as a very important diagnostic sign between cancer and other conditions, as he has noticed it in all but one of his own cases.

Microscopically the specimens of carcinomatous sputum which he examined contained, at certain times almost exclusively, pigment — free polygonal, polymorphous cells. In all other conditions the morphological elements of the sputum consisted, apart from a certain amount of pus and blood and flat epithelial and ciliated cells, solely of more or less markedly pigmented cells which were chiefly round or oval and only rarely polygonal in shape.

ETIOLOGY AND HISTOLOGY OF PNEUMONIA.¹⁰

Dürck has made a study, both bacteriological and histological, of the lungs of 41 children who had died of pneumonia, in order to determine whether the special form of inflammation was dependent on the presence of a particular organism. He found that in primary as well as the most diverse forms of secondary pneumonia many varieties of bacteria were always present, but that the diplococcus pneumoniae was the most frequent, being present in 84 per cent. of his cases, but that special combinations of bacteria were without recognizable influence in the histological structure of a pneumonic exudate. He also found that histologically the separation of the lobular or pseudo-lobar form of pneumonia from the lobar is impracticable.

⁹ *Zeitsch. f. klin. Med.*, 1897, Bd. xxxi.

¹⁰ *Deut. Arch. f. klin. Med.*, June, 1897.

A similar examination of the lungs of patients who had died from some other disease than pneumonia showed the presence of the same mixed forms of bacteria and that here also the pneumococcus was the most common. As he also found that many forms of pathogenic bacteria (pneumobacillus Friedländer, staphylococcus pyogenes, streptococcus pyogenes, diplococcus pneumoniae) were present in the lungs of freshly killed domestic animals, he therefore considers it safe to assume that the normal lungs of healthy individuals always contain mixed forms of bacteria, which differ at different times, but that their simple presence is not sufficient to induce a pneumonia, to the production of which some injury to the lung from outside influences is necessary.

As a result of some experiments on animals, he concludes that it is impossible to produce an artificial pneumonia in them by the intratracheal injection of pure cultures of any of these bacteria, unless simultaneously or within a short period irritating dust is also injected, but that insufflation of dust or the exposure of animals to chill without the injection of bacteria is sufficient to produce inflammation of the lungs having the character of a true lobar, fibrinous, mycotic pneumonia and due to an injury of the lung tissue which gives an opportunity for the development of the disease germs already here.

Reports of Societies.

BOSTON SOCIETY FOR MEDICAL IMPROVEMENT.

JAMES G. MUMFORD, M.D., SECRETARY.

(Report of Meeting of December 13, 1897. Concluded from No. 12, p. 241.)

DR. E. O. OTIS read a paper on

HOSPITALS AND SANATORIA FOR CONSUMPTION ABROAD,

illustrated by lantern slides.

DR. F. I. KNIGHT: It is so late that I will make only a few comments on Dr. Otis's paper, for which we certainly ought to feel very much indebted. The question of hospitals of course we need not say much about. The more hospitals for the segregation of consumptive patients there are in the world the more rapidly shall we be able to diminish the mortality from tuberculosis.

In regard to sanatoria a great deal ought to be said, because we in this country know very little about them, at least we seem to know very little about them. In balneology, the use of waters in the way of baths and other ways for the treatment of disease and in sanatoria for the treatment of tuberculosis, the Germans have been always far ahead of us. They began years and years ago to appreciate the fact that the treatment of tuberculosis was a serious and long affair and not only that, but one which repaid proper treatment when it was given. Why the Germans were first successful perhaps is due to the character of the German patient. Whatever "der Herr Professor" says, he will do, and if he tells him the first week of his cough that he is seriously affected and must take a year to get well, he believes him and will submit to

¹ See page 313 of the Journal.

whatever is required, and it is this discipline which accomplishes so much. The change in the spirit of the Germans when they appreciated the necessity of the situation is shown very well by two mottoes, one under the old *régimé* in the hall of the Kurhaus at Davos was "Be merry and you will soon be well," and later when they saw it was serious business getting well, the motto in the hall of Brehmer's establishment at Görbersdorf read, "Patients come here not to be amused, but to be cured."

Tuberculosis requires this long treatment and watchfulness on account of the many complications which may arise at any time and it is only constant watchfulness which will perhaps guide the patient safely through them. Niemeyer used to say: "The great danger of a consumptive patient is that he will become tuberculous." Now we know the great danger of a tubercular patient is that he will become consumptive, become subject to the secondary infections, after which his chances for an arrest of the disease are very much diminished or taken away entirely.

Now what are the aspects of the disease which require such watchfulness that a man should go into a sanatorium instead of being treated at home? for it certainly is true that the average results of sanatorium treatment are better than the treatment of patients at large in the same climate. The regulation of exercise is everything, and it is almost impossible to regulate a man's exercise unless you know his condition from day to day, the febrile condition for instance, and I know many of my patients have set themselves back months and months by one day's imprudence in exercise. So in the matter of food and digestion the most important thing next to pure air, the patient needs constant watchfulness to see that he gets food he can assimilate and that nothing interferes with it. How often does a patient return after a long absence complaining of no appetite? You find his tongue coated and perhaps that he is taking cod-liver oil or creosote, on the advice of some friend, and that his digestion is perhaps ruined past repair. So in this question of fever, especially of secondary infections, it is most important to have the patient under the constant control of the physician. So in the minor things, like dressing, etc. In regard to fresh air, you can seldom keep a private patient living at home out in the fresh air eight to ten hours a day, as they do in a sanatorium. We are moving in the right direction, and the sanatorium at Saranac Lake and other smaller ones, like those at Sharon, Mass., and Aiken, S. C., are on the right lines. I am happy to say Massachusetts has taken a step in the right direction in establishing a public institution of this kind at Rutland. I think we are the first to do so. The hospital is now nearly completed. Two of the trustees of the institution are here and I have no doubt we shall hear from them on the subject. The pavilion plan, which has been adopted in the American sanatoria just alluded to, seems to me to be best adapted to the purpose.

DR. V. Y. BOWDITCH: I am very much interested in Dr. Otis's paper. In 1889 I had the pleasure of visiting Görbersdorf just before Brehmer died and that visit of twenty-four hours was an inspiration. It is really a grand thought, when one recalls how that man's work has grown since he first advanced the idea of sanatorium treatment of consumption forty years ago. His new idea met with the usual treatment. It was ridiculed by every one, but he lived to see his theories

proved and his example followed steadily and surely. Especially in the last few years has the idea spread throughout not only Germany but the whole medical world as being the best method, on the whole, for treating consumption.

As Dr. Knight has said, the chief benefit of sanatorium treatment lies in the absolute control of the patient's daily life at a time when such control is a paramount necessity—in the incipient stage of the disease.

It goes almost without saying that if such treatment can be carried on in especially salubrious climates we can expect the best results, and yet what can be accomplished in less favorable regions is astonishing. No one who has passed a winter in North Germany can fail to recall the chilly, raw, sunless days which mark the chief portion of that season and at Dettweiler's Sanatorium at Falkenstein near Frankfort, among the mountains, some of the most satisfactory results have been accomplished.

Referring again to the importance of control of patients, I can speak from personal observation at the Sharon Sanitarium. Not infrequently it has occurred that a patient has transgressed the rules as to the amount of exercise to be taken each day and has come home after taking a much longer walk than was prescribed, exhausted. Almost in every case this has been followed by rise of temperature and malaise for several days. For the same reason, they are very rarely allowed to go to town during their stay except for the most urgent reasons, the excursions being followed usually by uncomfortable symptoms and consequent discouragement.

I have on previous occasions alluded to the not unnatural prejudice that, at first, exists in the minds of some against putting patients with consumption in the same institution, but practically in the experience of every one who has had knowledge of the matter, the depressing effect amounts to *nil* compared with the benefit to be gained. They may be homesick at first, but this feeling usually wears off quickly; they become accustomed to their surroundings and over and over again when depression occurs I have found it to be due to some outside cause and not because of the presence of other sick people.

Dr. Otis has spoken of the singular lack of coughing among the patients during meal-time at Falkenstein. I remember Dr. Dettweiler speaking of this very point. He talks with each patient and tells them they must endeavor to control the desire to cough, and if a paroxysm of coughing comes on it is a rule that they shall leave the table. He says "If you are in public and the skin itches you do not scratch. Coughing is a scratching of the throat!" It is remarkable how much can be accomplished by such advice, which is always kindly given.

As to the matter of contagion among the surrounding inhabitants of a locality from *properly regulated* sanatoria (I emphasize the adjective), it seems to me ridiculous to talk of it. It is against acknowledged facts. Statistics have shown that the number of deaths from phthisis has decreased in the villages of Falkenstein and Görbersdorf among the inhabitants since the establishment of the institutions there, doubtless due to the fact of the improved hygienic conditions, the result of the teachings of the two sanatoria.

DR. PERCY: It seems to me there is very little for us to say at this time. You realize fully the effort

made in the legislature some two years ago which resulted in the appropriation of money for building a sanatorium for consumptives and tubercular patients. The problem was not an easy one to solve and the trustees felt that among the most important things was the choice of a location, and in order that there should be no mistake, no harsh or adverse criticisms, there was sent to every member of the medical profession in the State a request for his personal opinion as to the valuable places for that purpose. This was considered, and then still more the observation or the report of men whose opinions were considered of unquestioned value. A personal visit at a most unreasonable time of the year to Rutland left in the minds of the medical members of the board the feeling that if a certain tract of land there could be obtained, with an abundance of sunshine and fresh air, this institution should be erected at Rutland. It has been built and shortly will be open to the public inspection. It is not yet possible for us to say positively anything definite in regard to the plans for carrying on the hospital. The pavilion plan has been carried out, and I think I can say from personal visits to hospitals in this country and abroad, I never have seen an institution which seemingly is so well adapted to its use. It is protected on the northeast, northwest and west from cold winds and lies basking in sun and the rooms are flooded with sunshine. Arrangements have been made for sun-rooms, and out-of-door life and rest-cure will be possible under most favorable conditions. In regard to the other matters which every one admits are of the utmost consequence it is in the minds of the trustees that there shall be no loop-hole. As to the advisability of such institutions it seems to me there is nothing to be said.

DR. A. WORCESTER: It is very late and I shall not take advantage of your courtesy for more than a few minutes. It is a most tempting theme on which to speak and I cannot say how thankful I am to Dr. Otis for this evening's pleasure and profit and also for many of his previous attempts to interest the profession in the treatment of tuberculosis. I hoped he would include in his description of sanatoria for tuberculous patients the one which I think leads the world, — that at Berlin, in the old sheds hastily erected for Koch's use six years ago and used for consumptive patients ever since. My interest in the treatment of tuberculosis is entirely due to the fact that in those old sheds connected with the Charité in Berlin, patients are evidently being cured of tuberculosis. When the enthusiasm in that band of men working on steadily and splendidly is contrasted with the work at Brompton, where the resident physician himself, when I asked him if he believed in the curability of tuberculosis, laughed and said "No," and his pessimism was reflected in the disconsolate condition of the patients from one end of the hospital to the other — when I contrasted that with the hopeful, enthusiastic condition at Berlin I was convinced there was something at Berlin which has not yet been brought to bear in London. I cannot help thinking one of the problems we have to face which is soluble, one of the difficulties which is surmountable, is the application of proper nursing in the cure of consumptives. I am certain no physician, however devoted he is in his private practice, can bring to bear that personal observation and oversight which is necessary; we cannot do it except through nurses. We can train nurses to do it. And if physicians had

more generally had their own nurses especially trained in the care of consumptives there would be more consumptives saved than are now saved. I think that is one of the ways in which the hospital at Rutland can help, for we hope to make arrangements with the training-schools for nurses throughout New England to take their student nurses for three to six months and train them in the care of consumptives, so that when they graduate from their different institutions they will be able to do better work than now. I hope we shall be able in this institution to impress the idea that Dr. Knight has so well put, — the difference between the consumptive and the tuberculous patient. If we can only get it into our heads that tuberculosis is not such a bad thing after all, that more get well of it than die of it, whether they have treatment or not, and if we can keep in mind, too, that the danger of tuberculosis is in making some little hole in the body into which some germ which is deadly can easily find its way, we can pull together a little more; and if the profession will help the Rutland Hospital by sending patients there who are tuberculous rather than patients who have been tuberculous and now have something else and are about to die, we shall, of course, be able to do a great deal more, and there will be other hospitals like it formed in this State and in other States. Whereas up till very recent times the profession might have been excused for not making the diagnosis of tuberculosis early enough so that there was a chance for doing some good, there is now no excuse. We have in tuberculosis with the aid of the microscope a diagnostic test of great value, and besides we have that extra means of diagnosis with tuberculin. If we can have that diagnosis made early and have the patients sent to Rutland at the beginning of their downward career who are merely tuberculous, that hospital can do a great deal for the patients and I believe a great deal for the State and country.

DR. OTIS: It is fair to state that the reason given by the Germans why they prefer a single large building to the pavilion system of small detached buildings is that they retain a better control of their patients and keep them more constantly under observation.

It is a question in my mind whether a State hospital for consumptives should be restricted to incipient cases. At least it seems to me quite as important and, indeed, a more pressing need, that provision should be made for the large class of advanced cases. A poor consumptive in the advanced stage of the disease is a most pathetic object. No hospital cares to take him. And the almshouse seems to be the only place where he can end his days. Moreover, it is just in this stage that he is the most dangerous to the community. It is to be devoutly desired that not only the State but the cities should make some adequate provision for this unfortunate class, either by setting apart certain wards in a general hospital, or, better, establishing special institutions in or near the cities.

THE PATIENT AND THE BICYCLE. — Last week a curious Nemesis restored a bicycle to its owner, a medical man, at Portsmouth. The doctor, while making a call, left his machine resting against the curb outside. On his coming out the cycle had disappeared, but an hour or two later a man was brought to his surgery suffering severely from a fall from a bicycle, which turned out to be that of the doctor. — *Medical Press and Circular*.

Recent Literature.

Epidemic Diphtheria. A Research on the Origin and Spread of the Disease, from an International Standpoint. By ARTHUR NEWSHOLME, M.D. Lond., M.R.C.P. Lond. London: Swan, Sonnenschein & Co. 1898.

This extremely valuable work by the Medical Officer of Health of Brighton, England, constitutes one of the most important additions to the study of diphtheria yet published. The author has endeavored by means of a careful analysis of the reports of all civilized countries to arrive at definite conclusions as to the determining conditions with reference to the spread of the disease.

Facts are presented from America (chiefly the United States), Great Britain, the continent of Europe, and from all places from which definite information could be obtained.

He agrees with Mr. Murphy, the Health Officer of London, that school attendance is a means of its spread.

In the large cities of America and of Europe, and especially in the former, there is a large mass of diphtheria constantly endemic.

The highest death-rate in England from this cause is not much more than half the lowest death-rate from the same cause in Massachusetts.

The relation of rainfall and the influence of soil are treated, but the author returns to the reasonable conclusion that personal infection is the chief means by which diphtheria is spread.

The work is illustrated with sixty carefully prepared diagrams which have the merit of comparability, being plotted upon a uniform scale.

Wounds in War: The Mechanism of their Production and their Treatment. By SURGEON-COLONEL W. F. STEVENSON (Army Medical Staff), A.B., M.B., M.D., M.Ch., Dublin University; Professor of Military Surgery, Army Medical School, Netley. Four hundred and nineteen pages and 86 illustrations. London, New York and Bombay: Longmans, Green & Co. 1897.

Dr. Stevenson has prepared a very interesting book. It is well and carefully written. The first two chapters discuss the manner in which wounds in war occur, the mechanics of projectiles and their effect on the human body. The main part of the book is devoted to the treatment of these injuries in general and in detail. The concluding chapters state the probable effects of the modern small calibre arms in the wars of the future and the origin, purposes and principal regulations of the Geneva Convention. The volume is well published, of convenient size and contains excellent illustrations. It contains much information relating to gunshot wounds which is of importance in civil as well as military surgery. There are few works in the English language which treat of the subject as it exists to-day. The present methods of warfare, modern weapons and the great difference between former and present medical science have revolutionized military surgery. The change is a recent one and has created a want in surgical literature which works like the author's excellently well supplies. Its perusal is recommended to those interested in traumatic surgery.

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PHYSIOLOGICAL CHEMISTRY AND ITS RELATION TO MEDICAL PRACTICE.

THE advancement in medicine which has come as a direct result of the investigation of recent years in the field of physiological and pathological chemistry cannot be overestimated. The observations in this field, made in laboratory analyses, and in experiments upon man and beast, have given us a scientific basis for the understanding of the chemical changes which are associated with, or underlie the conditions of health, and many conditions of disease, in the human organism.

Many of the results obtained in these investigations have not only added to our store of medical knowledge, but have proven of direct value in the field of practical medicine. It rests with the physician to familiarize himself with these results and to study their application to practical work, that he may avail himself, as far as is possible, of a scientific basis for the diagnosis and treatment of his cases.

The most important investigations of physiological chemistry from the point of view of practical medicine are those upon the general body metabolism in conditions of health and disease. The practical application of the knowledge which has been gained as the result of the extended investigations in regard to the fate of the different food principles in the body, and their influence upon nutrition and growth, to the doctrine of diet in conditions of health and disease, has been thoroughly reviewed by Van Noorden.

As the result of this long series of investigations, we have had computed and recorded: (1) The total metabolism per weight of the individual in the various conditions of health, as rest, and work; also the metabolism of individuals afflicted with certain definite diseases, as diabetes, gout, myxedema, etc. (2) The part played in the metabolism by each of the three classes of food substances — proteid, carbohydrate and fat. (3) The capacity or value of the separate foods, as beef, wheat, eggs, milk, etc., for purposes of metabolism.

With these records at hand it is possible for the physician, with an understanding of the conditions of physiological chemistry which underlie a given pathological condition, to estimate the probable metabolism of his patient, calculate the proportions of the proteids, carbohydrate and fat necessary to meet this demand most efficiently, and prescribe a diet fulfilling these requirements of metabolic value and proportion, from the various food-stuffs at his command.

The calculation of the values of the different food-stuffs for purposes of metabolism has been much simplified by the introduction of the conception of calories into the doctrines of nutrition. To quote Van Noorden: "Formerly observers said, 'a healthy man needs so many grammes of proteid, so many grammes of carbohydrate, so many grammes of fat.' It was inconvenient to reckon with three magnitudes and to bring them into correct relation with the requisites of the individual organism. To-day we compute the values of food-stuffs according to the physiological (kinetic) energy liberated in their oxydation. This degree of energy is expressed in terms of heat and represents the value of the food when it is burned in the process of metabolism. The unit for the measurement of this heat energy of the food is the calorie. The calorie signifies the amount of heat which is necessary to raise one kilogramme of water 1° C. The calorie value of a food is determined from the amount of heat which is liberated when this particular food is transformed from its original composition when it entered the body, by oxydation, into those chemical combinations in which it leaves the organism."

Thus one gramme of proteid furnishes 4.1 calories, one gramme carbohydrate 4.1 calories, one gramme fat 9.3 calories.

Investigations on metabolism show that a healthy adult uses up material of 30 to 34 calories value per kilogramme weight of body when at rest, of 40 to 45 calories value when at moderate work, and of 45 to 60 calories value when at hard work. That is, a healthy man of average weight at moderate work requires a food-supply of about 3,000 calories value.

Further analysis shows that to preserve the equilibrium of the tissues a certain proportion of the food must be nitrogenous; the remaining value may be made up from carbohydrate and fat, either or both. A suitable diet for this man may then be made up by giving, say, proteid to 400 calories value, carbohydrate to 1,660 calories value, and fat to 940 calories value — a total of 3,000 calories. If the calculation of the calories per kilogramme weight be correct, and the supply maintained accordingly, the individual will maintain his weight; if the supply of calories in the food be greater, he will gain weight; if less, he will lose.

The application of these results to the practice of dietetic treatment in conditions of health and disease is, we think, evident. An example of this application may be seen in the practice of forced or extra feeding, so useful in conditions of malnutrition accompanying

neurasthenia, overwork, chronic dyspepsia, and in acute febrile affections. In these conditions the patient, from lack of appetite, or from the association of malaise with the taking of food, or from poor advice, is taking a supply of food of a calories value insufficient to fulfil the needs of the body metabolism. He needs a food-supply of at least the normal calories value, and in many cases, owing to previous loss or to an abnormal oxydation of tissue consequent upon the disease present, a supply of supranormal calories value.

The questions which the physician must answer to himself in prescribing this treatment are:

(1) If more food be given than is required for the metabolism, will the patient assimilate it, or will it simply burn up in the body and pass off in the excretions?

(2) How much food is required for the creation of a reserve over the metabolism demands?

(3) What kind of food is best used?

In answer to the first question, investigation has proven that if more food than necessary for the metabolism is taken in by the organism, it will accumulate in the body principally as fat, not, as formerly supposed, be burned up in extra combustion.

The second question may be answered by a reference to our records of the investigations on metabolism in health and disease. Thirty to forty calories per kilogramme weight represents the daily need of the normal individual at rest. To insure the increase in weight which is indicated, the patient must therefore take a supply of greater calories value than the above, even where the metabolism is normal in amount. In diseases in which the metabolism is proportionately greater than in the normal condition, as for instance those associated with fever, an increased food-supply over normal is necessary merely to satisfy the needs of metabolism.

In regard to the third question, what kind of food is best given, it has been proven by investigation, that of all food assimilated over that necessary for metabolism, whether proteid, carbohydrate or fat, nine-tenths to nineteen-twentieths is transformed to body fat. These figures refer to the normal adult. In growing children and convalescents from disease, the proportion of proteid which is to be built up in the body is greater, and thus a larger proportion of the superfluous food goes to proteid structure. So that provided the necessary amount of nitrogenous food, enough to hold the equilibrium of the proteid tissue, be included in the supply, and provided the food can be digested and absorbed, it makes no difference what kind of food you give to increase the nutrition, if only you give a supply of a calories value above the needs of metabolism. The important factor is the sufficient quantity.

Van Noorden has pointed out the special importance of these facts in the treatment of febrile conditions. Investigation has shown that there is an increased nitrogen excretion associated with febrile conditions. The cause of this increase is twofold: first, the intoxication which causes destruction of protoplasmic tissue;

second, the inanition from lack of food. The first cause we cannot check by diet, the second we can. The proteid tissues are being used for combustion, because, owing to poor appetite or poor treatment, a sufficient supply of food is not taken to satisfy the needs for metabolism.

The indication is therefore to supply food sufficient to provide for the normal *plus* the extra combustion, that the nitrogenous tissues may be spared as much as possible from this process.

A second example of the application of these results in physiological and pathological chemistry to practical medicine is found in the treatment of diabetes mellitus. In this disease the metabolism has been proven to be at fault in respect to one class of food, the carbohydrate. The proteid and fat are transformed with their regular equivalent of energy, but the carbohydrate is excreted to a greater or less extent unused. To nourish the organism, therefore, a diet of a normal calories value, consisting of proteid and fat alone, must be given.

The investigations upon the chemistry of the functions of digestion have opened the way to a scientific method of diagnosis and treatment of the disorders of the digestive tract. Experimental research has revealed the character of the secretions which take part in the process of digestion, and the nature of the action of these secretions upon the ingested food.

In regard to the gastric functions we possess practical methods by which we can ascertain the character and quantity of the secretions and the vigor of the digestive function in a given individual. We have, then, in a given case to ascertain the condition of the secretions and of the digestive function by the application of our clinical methods, to determine the normality or abnormality of the condition found by a comparison with the results of investigation on the normal individual, and if abnormality exist to rectify it by treatment. If an abnormality in the amount of some particular constituent of the digestive secretion be determined, we may treat it either by adapting our diet to the existing condition of this secretion, or by supplying the constituent in artificial form, or by stimulating the natural secretion.

To aid us in these methods of treatment, we possess tables of the digestibility of the different food substances in the gastric juice, and in the acid constituent of this juice, based upon exhaustive investigations. If the analysis of the gastric contents show a diminution in digestive activity, the diet is made up of those articles which the reference tables record as easily digestible. If a diminution in the hydrochloric acid of the gastric secretion be present, that food is chosen which requires for digestion a less quantity of HCl, and in addition free hydrochloric acid given with the food. If an excess of acid be present, foods which combine with large amounts of HCl are given, and, if desired, alkalies given to neutralize the acid.

A most important result of these investigations of the chemistry of the gastric functions is the conclusion

which has been attained that the vital factor of the gastric digestive function is the motility.

Experimental investigation and clinical experience both tend to prove that the nutritional disorder necessarily consequent upon an abnormality of the gastric function is, as a rule, in proportion to the extent to which this abnormality affects or is associated with a disorder of the motility of the stomach. Investigation has determined that whether the food reach the intestine digested or unchanged, that is, whether the function of gastric digestion be active or not, a sufficient quantity can be digested and assimilated to support the needs of the organism; also, that practically the total absorption of the food products takes place in the intestine.

Whether, therefore, the food be acted upon in the stomach or not, the absolutely essential point is that it shall reach the intestine and in proper time; and this function rests with the motor power of the stomach.

The knowledge of the chemistry of intestinal digestion in health and disease, though less intimate than of the gastric digestion, has been much advanced as a result of the investigations of recent years. It is now known that the digestion of fats is dependent upon the proper secretion of bile and of pancreatic juice. In the absence of bile, but one-fifth of the fats ingested in a normal diet are absorbed. If the pancreatic secretion be excluded from the intestine, one-third of the fat fails of absorption. The bearing of this knowledge upon the treatment of conditions in which these secretions are lacking in the intestine is clear. The neutral fats must be diminished in the diet. And, in addition, the failing biliary secretion may be to some extent supplied artificially.

In connection with this subject of the digestion of fat, recent investigations have tended to prove that a large proportion of the fat of the food may be absorbed in the form of fatty acids in solution in the bile acids. Following this indication, therefore, it is reasonable, where the pancreatic secretion with its fat-splitting ferment is absent, to obtain our fat radicle in the diet as fatty acids instead of as neutral fats.

Direct indications for the treatment of intestinal disorders have come from investigations of the intestinal digestion in patients with fistulæ of the lower ileum or cecum. These investigations show that in a diet of normal calories value, even where the proportion of fat or carbohydrate is high, these latter food elements are digested and absorbed in practically their total quantity before reaching the large intestine, while the absorption of proteids up to this point amounts to but 80 to 90 per cent. of the total absorption. These results suggest the use of a diet consisting largely of fats and carbohydrates in conditions of inflammation of the large intestine.

The results of the investigations on the internal glandular secretions have proved of much practical benefit in the case of the thyroid secretions. The influence of this secretion on conditions of health and disease, especially the diseases of myxedema, cretinism

and parenchymatous goitre have been carefully studied, and the use of preparations of the secretion for therapeutic purposes firmly established.

The insight into the conditions of the organism which has come as a result of the investigation of the urine in conditions of health and disease is familiar to all. The routine examination of this excretion as an index of the conditions of metabolism, as well as of the condition of the renal function, is or should be the practice of every physician.

We have touched upon a few of many instances of the direct application of the results of the investigations in physiological chemistry to practical medicine. Of equal if not greater interest and value is the indirect application to medicine of the chemical investigations involved in the study of the biology of bacterial organisms and in the preparation of their nutrient media, which serve as the basis of bacteriological and antitoxin research.

In practice these results of scientific investigation should govern us in the formation of general rules of procedure. In the application of the rules to special cases we must bear in mind the possibility of individual idiosyncrasy. One man may attain, as far as we can determine, perfect health upon a food-supply which is totally insufficient for another individual of the same weight and habits. One patient may suffer from symptoms of hyperacidity of the gastric juice, with a secretion of acid such as causes no trouble in another.

The influence of the nervous system, the capacity of reserve force, and the power of vicarious function, upon which these variations in individual function depend, are forces which we cannot as yet determine in scientific data. The existence of this element of individual idiosyncrasy does not, however, vitiate the value of the general scientific results.

MEDICAL NOTES.

A BEQUEST TO THE PENNSYLVANIA HOSPITAL.—It is said that by the will of the late William J. Headlam, the hoardings of a lifetime of parsimony and self-denial, amounting to between \$50,000 and \$75,000 are to go to the Pennsylvania Hospital.

DR. MILLS PROFESSOR OF NEUROPATHOLOGY.—Dr. Charles K. Mills has resigned from the chair of diseases of the nervous system in the Philadelphia Polyclinic and has been elected to a new chair of neuropathology. Dr. Mills was one of the founders of the institution.

BOILED ANTITOXIN!—A physician wrote to a manufacturer of antitoxin, inquiring whether the syringe or the antitoxin was to be boiled before using. It need hardly be said that boiling, of course, destroys the albuminous material, and yet the manufacturer writes us that he has on hand something like thirteen dollars' worth of boiled antitoxin returned by physicians who gained wisdom by expensive experience. — *Philadelphia Medical Journal.*

BRITISH MEDICAL ASSOCIATION.—The sixty-seventh annual meeting of the British Medical Association will be held at Edinburgh, July 26, 27 and 28, 1898, under the presidency of Sir Thomas Grainger Stewart. The Address in Medicine will be delivered by Dr. Thomas R. Eraser; the Address in Surgery by Mr. Thomas Annandale; the Address in Psychological Medicine by Sir John Battey Tuke. The scientific business of the meeting will be conducted in sixteen sections.

WHERE CO-EDUCATION FAILED.—Last year the lady medicals eagerly availed themselves of Dr. Clouston's course of lectures on mental diseases at Edinburgh University. At one of these a lunatic patient in the clinic told a somewhat stout student that she "was like a clucking hen," to the no small amusement of the class. The lady did not appear again, nor will female students be allowed the privilege of attending Dr. Clouston's course this year, as the mental clinic has been found somewhat embarrassing with a mixed audience. — *Medical Press and Circular.*

THE CONSERVATIVE TREATMENT OF GUNSHOT INJURIES OF THE BRAIN.—At a Berlin medical society in February, von Bergmann showed two patients with bullets in the brain. In both the wounds were healed and the patients presented very few symptoms at the time of demonstration. At first, however, there had been in one case, hemiplegia, hemianesthesia, one side deafness and total blindness, which had all passed away, leaving finally a slight paralysis only of the left leg. The projectiles were photographed with the x-rays. Notwithstanding the urgent wishes of both patients to have the bullets extracted, v. Bergmann had refused to operate, as there was no indication for such interference.

THE RAVAGES OF PLAGUE.—During March the mortality from plague in Bombay reached the highest point yet known. During the week ending March 23d, there were 1,259 deaths from this cause in and around Bombay. On March 17th, 265 deaths occurred in the city. This mortality surpasses anything that has been published, and it would seem that there is but slight evidence of any real abatement. Five Europeans died during the week, and previous experience has shown that Europeans are most liable to suffer during a recrudescence. Meanwhile, according to the *British Medical Journal*, the vigilance of the medical authorities all over the infected districts is keenly on the alert, and everything that can be done in the way of dealing with the sick and healthy is being energetically carried out. Not one system of prevention only is being followed, but every expedient measure is being employed.

SKIN-GRAFTING EXTRAORDINARY.—A curious case was tried recently at Sydney, where a woman brought an action for damages against a doctor who had removed fifty-two square inches of skin to graft on a patient who had been severely burned. It must be admitted that this was a rather large draft on any one's abnegation, and the good lady seems to have re-

gretted her generosity when it was too late. Unfortunately for her, the fact that she was a consenting party was held by the jury to exonerate the doctor, so she is minus both skin and damages. Possibly a claim would lie against the beneficiary, though even a committee of experts would find it difficult to appraise the value of skin per square inch. On any future occasion we would suggest that she should stipulate beforehand how much skin she was prepared to "shed." Seriously, however, the plaintiff appeared to have had just cause for complaint, and we are quite unable to approve the conduct of a surgeon who, even by consent, partially flays one person in the interest of another. — *Medical Press and Circular*.

NEW YORK.

PTOMAINÉ POISONING AND TUBERCULAR MENINGITIS.—Since the sudden death of Herr Anton Seidl there have been in the newspapers reports of a number of deaths which have been alleged to be due to the action of ptomaines. In no instance, however, has the statement thus far been substantiated by scientific investigation. In the case of a German child nine years old, on upper Third Avenue, who was supposed to have died of ptomainé poisoning from eating canned salmon, the autopsy, made by Dr. Donlin, coroner's physician, showed that the cause of death was in reality tubercular meningitis.

DEATH OF DR. GEORGE S. LITTLE.—Dr. George S. Little, a well-known practitioner of Brooklyn, died at his home in that borough on March 31st, of renal and cardiac disease. He served throughout the late war in the medical division of the army, first as assistant surgeon of the 19th Regiment New York Volunteers, afterwards as assistant surgeon of the 97th Regiment, and finally as surgeon of the latter regiment.

A BLOW AT "FACE SPECIALISTS."—According to the *Medical News*, a bill has been introduced in the New York Assembly to put a stop to the work of unprincipled persons who make a business of removing facial blemishes and making dimples. The bill provides that such work may not be done by any but practising physicians. A fine of \$250 and imprisonment for six months will be the penalty for the first offence, a fine of \$500, and a year's imprisonment for a subsequent conviction.

CROZER-GRIFFITH LECTURES AT BELLEVUE.—Prof. J. P. Crozer-Griffith, of the University of Pennsylvania, Department of Diseases of Children, lectured by invitation of the Faculty before the Bellevue Hospital Medical College on March 22d. The subject of the lecture was "Typhoid Fever in Infants and Children."

NEW HOSPITAL FOR NEW YORK.—The New York State Board of Charities has been requested to approve the incorporation of "The Storrs Memorial Hospital" of New York City. The hospital is intended as a memorial to the late Richard A. Storrs,

Deputy Comptroller of the City of New York, and for nearly forty years connected with the comptroller's office.

ASTORIA HOSPITAL TO CLOSE.—The Astoria (L. I.) Hospital, which was established by the women of Astoria section of Long Island City, is to close its doors as soon as the patients now in the institution are well enough to be removed. Under the new charter the city authorities cannot send public patients to the institution, and it cannot be successfully conducted without the income derived from them.

Miscellany.

AMERICAN ASSOCIATION FOR THE ADVANCEMENT OF SCIENCE.

A CIRCULAR letter has been issued by F. W. Putnam, for twenty-five years the permanent Secretary of the Association, calling attention to the Fiftieth Anniversary of the Association, which is to be celebrated in Boston, August 22-27, 1898.

Early in the year 1897 the Boston Society of Natural History appointed a committee to take the initiative in extending an invitation to the Association to hold its Jubilee Meeting in Boston. Later, the Governor of Massachusetts and the Mayor of the City of Boston united with the various scientific and educational institutions of Boston and vicinity in a cordial invitation to the Association to hold its anniversary meeting in the city of its birth. This invitation was accepted at the Detroit Meeting.

The Boston Local Committee is now organized; everything will be done to make the meeting a successful one, both in its scientific and its social aspects. This anniversary gives promise of being the most important scientific gathering ever held in the United States, and the celebration of fifty years of science in America is an occasion worthy of the best efforts of the city.

Many foreign scientists will be invited to take part, and many foreign educational and scientific institutions will undoubtedly send delegates, thus giving to the meeting an international character.

During the Association week and the days immediately preceding a number of affiliated societies will meet in Boston, including the American Forestry Association, the American Geological Society, the American Chemical Society, the Society of Economic Entomologists, the Society for Promoting Engineering Education, the Society for the Promotion of Agricultural Science, the American Mathematical Society and several other important bodies.

The officers of the Massachusetts Institute of Technology and of the Boston Society of Natural History have generously placed their halls and rooms at the disposal of the Association; and thus accommodations will be furnished for all the Sections and for the General Sessions in the three closely adjoining buildings.

The Corporation of Harvard University has invited the Association to be its guest for a day in Cambridge; and the Essex Institute has arranged for a day in Salem. There will also be an excursion in the harbor, and after the meeting, trips to the White Mountains and to Cape Cod.

THE PASSING OF CHLOROFORM IN ENGLAND.

DR. FREDERIC W. HEWITT, anesthetist to the London Hospital, states in a recent article in *The Lancet* that chloroform was administered in only 677 cases out of the 6,657 cases anesthetized at that institution during 1897. He further says: "Several years ago this anesthetic was in routine use; but experience has tended to somewhat shake our confidence in it for general employment."

When such a report is made, coming as it does from a large and important hospital, it seems very significant. A better example of medical conservatism cannot, perhaps, be found than in the use of the two great anesthetics. For a long time it has been very evident that ether is the generally safer anesthetic; but convenience, the fact that chloroform is pleasanter to administer and less disagreeable in its after-effects, and, above all, habit, seemed for years to blind the eyes of our English brethren to that most important consideration, the greater danger to human life. What though the danger be but slightly greater, is any man justified in risking his patient's life? The gradual change in favor of ether is coming, not alone in England, but on the continent of Europe. In several of the large German and French clinics ether is the usual anesthetic, and in spite of the shockingly large number of chloroform-fatalities annually reported in the *British Medical Journal* and in *The Lancet*, we believe that there is greater need of this change on the Continent; for what American who has visited the clinics of Europe has not been amazed and disgusted at the careless administration of chloroform in some of the most celebrated clinics? It should in justice be stated that there has been in certain parts of our own country almost as much prejudice against chloroform as has been shown in favor of it on the other side of the Atlantic. At present it is generally recognized, however, even in Boston, that although ether is the anesthetic to be chosen in the vast majority of cases, chloroform is very definitely indicated under certain conditions, and this, we believe, is the proper solution of the matter. — *Philadelphia Medical Journal*.

ANNUAL MEETING OF THE AMERICAN MEDICAL ASSOCIATION.

As we have already noted, the preparations for the forty-ninth annual session of this Association to be held in Denver, Col., Tuesday, Wednesday, Thursday and Friday, June 7, 8, 9 and 10, 1898, are well under way and give promise of a most successful meeting. According to a circular letter recently issued by the officers of the Society, in future each delegate or permanent member when registering must also record the name of the Section, if any, which he will attend, and in which he will cast his vote for Section officers. An amendment to the constitution and by-laws of the Association will be presented favoring greater liberality in the matter of membership, and providing that "Any State or local medical society or other organized institution whose rules, regulations and code of ethics agree in principle with those of this Association, may be entitled to representation on the advice or agreement of the Judicial Council." The general addresses will be as follows: Presidential Address, George M. Sternberg, Washington, D. C.; Address

in Surgery, J. B. Murphy, Chicago; Address in Medicine, J. H. Musser; Address in State Medicine, not yet determined. The officers of the various Sections are as follows:

Practice of Medicine. — S. A. Fisk, Denver, Col., Chairman; A. A. Jones, Buffalo, N. Y., Secretary.

Surgery and Anatomy. — W. L. Rodman, Louisville, Ky., Chairman; Clayton Parkhill, Denver, Col., Secretary.

Obstetrics and Diseases of Women. — Joseph Price, Philadelphia, Pa., Chairman; C. Lester Hall, Kansas City, Mo., Secretary.

Ophthalmology. — Harold Gifford, Omaha, Neb., Chairman; Robert L. Randolph, Baltimore, Md., Secretary.

Laryngology and Otology. — B. Alexander Randall, Philadelphia, Pa., Chairman; S. E. Solly, Colorado Springs, Col., Secretary.

Diseases of Children. — J. P. Crozer-Griffith, Philadelphia, Pa., Chairman; Edwin Rosenthal, Philadelphia, Pa., Secretary.

Materia Medica, Pharmacy and Therapeutics. — John V. Shoemaker, Philadelphia, Pa., Chairman; C. C. Fite, New York, N. Y., Secretary.

Physiology and Dietetics. — Randall Hunt, Shreveport, La., Chairman; A. H. Tuttle, Cambridge, Mass., Secretary.

Neurology and Medical Jurisprudence. — Charles H. Hughes, St. Louis, Mo., Chairman; Hugh T. Patrick, Chicago, Ill., Secretary.

Cutaneous Medicine and Surgery. — A. W. Brayton, Indianapolis, Ind., Chairman; T. C. Gilchrist, Baltimore, Md., Secretary.

State Medicine. — I. N. Quimby, Jersey City, N. J., Chairman; Arthur R. Reynolds, Chicago, Ill., Secretary.

Stomatology. — G. V. I. Brown, Duluth, Minn., Chairman; Eugene S. Talbot, Chicago, Ill., Secretary.

Permanent Secretary. — Wm. B. Atkinson.

INSECT COOKERY.

A SUBSCRIBER, says *The Caterer*, has sent us a little pamphlet which propounds on its cover — embellished with drawings of creeping things — the rather startling question "Why not Eat Insects." The author, Mr. Vincent M. Holt, has the courage of his opinions, and appears to have actually experimented gastronomically upon cockchafers, caterpillars, woodlice, slugs and such-like "dainties" (save the mark!). It is only fair to say he draws a sharp line of demarcation between vegetable-feeding insects and those of carnivorous instincts, such, for example, as the common fly, carrion beetle and churchyard beetle (*Blaps Mortisaga*). These latter are not considered eligible for culinary treatment, although as "foul feeders" they are considered by Mr. Holt to be not much lower in the scale of animal creation than the lobster and the pig. He writes: "My insects are all vegetable-feeders, clean, palatable, wholesome, and decidedly more particular in their feeding than ourselves. While I am confident they will never condescend to eat *us*, I am equally confident that, in finding out how good they are, we shall some day right gladly cook and eat *them*."

As a curiosity, we may reprint a couple of insect

menus suggested by the author of this most curious and uncanny addition to the literature of the kitchen.

I.	
FRENCH.	ENGLISH.
Potage aux Limaces à la Chinoise.	Slug Soup.
Morue Bouillie à l'Anglaise.	Boiled Cod, with Snail Sauce.
Sauce aux Limaçons.	
Larves de Guêpes frites au Rayon.	Wasp Grubs fried in the Comb.
Phalènes à l'Hottentot.	Moths Sautées in Butter.
Bœuf aux Chenilles.	Braised Beef, with Caterpillars.
Petites Carottes, Sauce Blanche aux Rougets.	New Carrots, with Wireworm Sauce.
Crème de Groseilles aux Némates.	Gooseberry Cream, with Sawflies.
Larves de Hanneton Grillées.	Devilled Chafer Grubs.
Cerfs-Volants à la Gru Gru.	Stag Beetle Larvæ on Toast.
II.	
FRENCH.	ENGLISH.
Potages aux Limaçons à la Française.	Snail Soup.
Soles Frites, Sauce aux Cloportes.	Fried Soles, with Woodlouse Sauce.
Hannetons à la Sauterelle des Indes.	Curried Cockchafers.
Fricassée de Poulets aux Chrysalides.	Fricassée of Chicken, with Chrysalids.
Carré de Mouton, Sauce aux Rougets.	Boiled Neck of Mutton, with Wireworm Sauce.
Canetons aux Petits Pois.	Ducklings, with Green Peas.
Choufleurs garnies de Chenilles.	Cauliflowers Garnished with Caterpillars.
Phalènes au Parmesan.	Moths on Toast.

— *Food and Sanitation.*

GASTROPTOSIS.

KUTTNER and Dyer¹ call attention to the frequency of gastroptosis in comparison with ptosis of the other viscera. Morgagni, as early as the middle of the last century, called attention to it under the name of "sinking of the stomach." The anatomist Meckel, in 1815, quoted in later text-books of anatomy, noted that in female subjects the stomach not infrequently took a vertical direction. The changes in the position of the stomach have not even to-day been given the consideration by clinicians which is warranted by their practical importance, this fact being due to the circumstance that they are regarded as entirely indifferent conditions and therefore unworthy of notice. Their diagnosis also requires time-consuming and complex methods of examination.

Recent observers Glenard, Ewald, Kuttner, Meinert, Dujardin-Beaumetz and others have recognized gastroptosis as an important part of general enteroptosis. Recognizing the importance of an investigation of gastroptosis in its relation to enteroptosis, and with regard to its effect on the general system, Kuttner and Dyer have made a large number of examinations of the form and position of the stomach, in the polyclinic of the Augusta Hospital at Berlin, the results of which are embodied in this paper.

Gastroptosis was ascribed by Glenard chiefly to the dragging upon the stomach of the prolapsed colon in enteroptosis. Later writers, Meinert, Dickinson and others, have ascribed it chiefly to tight lacing. It may be due to overloading with food, or in rare cases to an abnormally low position of the diaphragm.

Kuttner and Dyer consider overloading with food the most important cause of gastroptosis, and also maintain that a congenital disposition to gastroptosis exists as a factor. This congenital disposition is present in individuals with weak, ill-balanced, nervous systems, and defective circulation and nutrition, such as are frequently the subjects of digestive neurasthenia.

¹ Berliner klin. Woch., 1897, vol. xxxiv, pp. 420, 452 and 471.

Stiller has found abnormal mobility of the tenth rib to be present in a large number of patients suffering from neurasthenia and enteroptosis, and considers this costa fluctuans an important physical sign of enteroptosis. Kuttner and Dyer were able to confirm this assertion of Stiller, after examination of a very large number of cases.

By the examination of 100 children, 100 women and 100 men, who came to be treated for various diseases at the polyclinic with regard to the position of the stomach, an attempt was made to determine the frequency of dislocation of the stomach at different ages, and its comparative frequency in the male and female. Of the 300 cases examined, 42 of the women and girls and only 4 of the men and boys showed pronounced gastroptosis, showing that the female sex furnishes by far the greater number of cases. With regard to age, gastroptosis was found most frequently between the fifteenth and fortieth years. Pregnancy and repeated child-bearing were found to be important only as contributory causes. Dyspeptic disorders which were to be referred entirely to the gastroptosis were observed 16 times. In 10 cases which also presented dyspeptic symptoms these were due to coincident disease of the stomach. In 20 cases no dyspeptic symptoms were present.

The fact that gastroptosis is in by far the larger number of cases a part of a general enteroptosis is shown by the fact that in 15 of the 42 cases double movable kidney, and in 15 movable right kidney, was coincident. The liver was found dislocated 10 times, and the spleen 4 times.

The symptoms which are chiefly the general group classed as dyspepsia may be attributed partly to disturbance in the motility of the organ, and partly to stretching of the ligamentous attachments and dragging upon the nerves. The writers' investigations lead them to the view that muscular atony may in some cases be the cause, as in others it is probably the consequence of the ptosis.

The frequency with which gastroptosis as well as enteroptosis may exist without being accompanied by symptoms is commented upon at great length.

A study of the blood in 19 cases who were subjects of gastroptosis and a corresponding number in which the position of the stomach was normal showed that no marked diminution in the amount of hemoglobin was present in these cases.

The remainder of the paper is occupied with a discussion of the diagnosis and treatment of the disease, to which nothing of especial note is contributed.

RUPTURE OF AORTIC ANEURISM INTO THE BRONCHUS.

At a meeting of the Edinburgh Medico-Chirurgical Society, held on January 19th, Dr. Bruce showed a specimen of great interest and rarity — the rupture of an aortic aneurism into the bronchus. The aneurism occupied the transverse part of the aorta and the first part of the descending aorta. There was a small secondary sac also, which was directed toward and into the left bronchus, compressing it entirely. In the corresponding lung a condition of "aneurism phthisis" was set up. The lung was completely consolidated and contained many small caseous nodules. There

was also complete pleural adhesion. The patient had been much exposed, and on admission presented the symptoms of acute pneumonia; his temperature was high; the lung was extremely dull below and presented the Skodaic note at the apex. So dull was the basal note that four aspirations were made with negative results. This consolidation extended up the lung toward the apex. The patient's temperature remained irregular, but he was thought to be improving; when coughing, he was seized with bleeding and almost immediately died. The diagnosis was rendered obscure by there being no displacement of the heart and no abnormal heart sounds. — *Lancet*.

Correspondence.

THE AFTER-CARE OF THE INSANE.

"WOODBOURNE," BOSTON, MASS., April 2, 1898.

MR. EDITOR: — Mr. F. B. Sanborn's letter in the JOURNAL of March 24th, *apropos* of the report of the Committee on the After-Care of the Insane which had elicited our editorial, affords me a welcome opportunity of expressing the gratification of that committee at your advocacy of the measure. It gives fresh evidence of the interest in "after-care" which is being awakened in helpful quarters throughout the country.

In reply to Mr. Sanborn's intimation of defects in the historical portion of the report regarding the "after-care" movement, I may say that no attempt was made to give the history of its development. The Committee was instructed, as it states, simply "to investigate and report upon some feasible plan of practical 'after-care.'" Accordingly, the account of similar protective societies abroad was purposely made as brief as was possible without sacrificing any really necessary information as to precedents. Further, the origin of such societies in France is not, as Mr. Sanborn asserts, ascribed to Falret in the report. The words are: "These considerations led in France to the founding by Falret in 1841 of an association," etc. A full history of the movement has been left to another and more suitable occasion, when I hope to avail myself of Mr. Sanborn's reminder of the work done in Germany. I am inclined to believe that for practical results Switzerland bears the palm.

In regard to Mr. Sanborn's criticism of oversight on our part in not pointing out that the boarding-out system in Scotland and elsewhere gives one of the best opportunities for "after-care," I may say that all mention of this system was purposely avoided in the report, lest in the minds of some this provision for chronic, harmless and presumably incurable insane, who, although boarded-out in families, remain under permanent supervision and control by the State, might be confounded with the real "after-care" project, which is intended to afford only temporary protection and relief — preferably through private associations — to the recovered and convalescent insane on their discharge from State institutions, and for whom public custody and control is no longer necessary or legal. In short, the boarding-out or family system, to which Mr. Sanborn refers, provides for the permanent care in private families of patients who are *still insane*, while "after-care" in its true sense is intended to provide only temporary relief and protection for those who have been discharged from public care and supervision *as recovered or convalescent*.

I myself have long and earnestly upheld the boarding-out or family system as an admirable accessory provision for our dependent insane, and know of no earlier public advocate of its adoption in Massachusetts. It is of great value to certain of the chronic insane as a means of comfort, self-support and, in occasional cases, as Mr. Sanborn

says, of restoration to health, but should not be mistaken for "after-care," which benefits quite another but equally deserving class.

Very truly yours,

HENRY R. STEDMAN, M.D.

A FIRST-CLASS FRAUD.

Boston, April 4, 1898.

MR. EDITOR: — A man—short, thick, well-dressed, with stick in hand, about forty years old—has been "operating" Boston for several weeks, till two weeks ago, when, with wife and baggage, he left by the Providence Railroad. He presented his card as Dr. C. C. Perry, putting out his sign at 94 Compton Street, corner of Tremont, and stated that he had just returned from a visit to Europe. The janitor where he stopped says about forty people have come inquiring after him, some for money borrowed, others for goods furnished on instalments, etc. He is evidently a first-class fraud.

Very truly yours,

E. CHENERY, M.D.

RECORD OF MORTALITY

FOR THE WEEK ENDING SATURDAY, MARCH 26, 1898.

Cities.	Estimated population.	Reported deaths in each.	Deaths under five years.	Percentage of deaths from				
				Infectious diseases.	Acute lung diseases.	Diphtheria and croup.	Typhoid fever.	Measles.
New York . . .	3,438,899	—	—	—	—	—	—	—
Chicago . . .	1,619,226	—	—	—	—	—	—	—
Philadelphia . . .	1,214,268	504	192	15.20	13.30	6.46	1.14	1.14
Brooklyn . . .	1,180,000	—	—	—	—	—	—	—
St. Louis . . .	570,000	—	—	—	—	—	—	—
Baltimore . . .	550,000	213	73	10.58	14.26	5.06	1.84	.46
Boston . . .	517,782	216	57	5.52	20.70	—	1.38	.92
Cincinnati . . .	405,000	117	—	4.25	11.06	1.70	.88	—
Cleveland . . .	350,000	114	—	2.64	2.64	.88	1.76	—
Pittsburg . . .	285,000	99	43	6.06	24.24	—	1.01	—
Washington . . .	277,000	—	—	—	—	—	—	—
Milwaukee . . .	275,000	—	—	—	—	—	—	—
Worcester . . .	105,050	32	12	15.65	15.65	3.18	—	—
Nashville . . .	87,704	28	9	—	14.28	—	—	—
Fall River . . .	85,919	28	13	10.71	25.00	—	—	—
Lowell . . .	87,193	27	5	—	18.50	—	—	—
Cambridge . . .	86,812	25	13	8.00	16.00	—	4.00	—
Lynn . . .	65,220	17	4	11.76	23.52	—	5.88	—
Charleston . . .	65,165	—	—	—	—	—	—	—
New Bedford . . .	62,416	20	13	—	20.00	—	—	—
Lawrence . . .	55,510	13	5	—	—	—	—	—
Springfield . . .	54,790	20	5	10.00	5.00	—	—	—
Holyoke . . .	42,364	7	2	—	—	—	—	—
Portland . . .	40,000	—	—	—	—	—	—	—
Salem . . .	36,062	17	4	—	11.76	—	—	—
Brookton . . .	35,853	—	—	—	—	—	—	—
Malden . . .	32,894	10	3	20.00	—	—	—	—
Chelsea . . .	32,716	14	4	—	7.14	—	—	—
Haverhill . . .	31,406	8	2	—	25.00	—	—	—
Gloucester . . .	29,775	—	—	—	—	—	—	—
Newton . . .	28,980	9	4	11.11	11.11	—	11.11	—
Fitchburg . . .	28,392	6	4	—	16.66	—	—	—
Taunton . . .	27,812	14	3	—	—	—	—	—
Quincy . . .	22,562	7	3	—	—	—	—	—
Pittsfield . . .	21,891	—	—	—	—	—	—	—
Waltham . . .	21,812	5	1	—	—	—	—	—
Everett . . .	21,575	6	1	16.66	—	—	16.66	—
Northampton . . .	17,448	—	—	—	—	—	—	—
Newburyport . . .	14,794	4	0	—	—	—	—	—
Amesbury . . .	10,920	—	—	—	—	—	—	—

Deaths reported 1,679; under five years of age 503; principal infectious diseases (small-pox, measles, diphtheria and croup, cerebro-spinal meningitis, diarrheal diseases, whooping-cough, erysipelas and fevers) 151, acute lung diseases 260, consumption 197, diphtheria and croup 48, measles 31, typhoid fever 21, diarrheal diseases 16, cerebro-spinal meningitis 15, whooping-cough 10, scarlet fever 8, erysipelas 5.

From diarrheal diseases Philadelphia 6, Fall River 3, Boston and Providence 2 each, Pittsburg, Springfield and Melrose 1 each. From cerebro-spinal meningitis Baltimore, Boston and Worcester 3 each, Holyoke and Malden 2 each, Cleveland and Springfield 1 each. From whooping-cough Pittsburg 3, Baltimore and Boston 2 each, Philadelphia, Cincinnati and Cambridge

1 each. From scarlet fever Philadelphia 6, Baltimore and Cincinnati 1 each. From erysipelas Philadelphia 2, Baltimore, Worcester and Holyoke 1 each.

In the thirty-three greater towns of England and Wales, with an estimated population of 11,218,378, for the week ending March 19th, the death-rate was 21.8. Deaths reported 4,693; acute diseases of the respiratory organs (London) 430, measles 251, whooping-cough 124, diphtheria 60, diarrhea 59, fever 31, scarlet fever 29.

The death-rates ranged from 13.8 in Croydon to 30.9 in Oldham; Birmingham, 23.8, Bradford 23.4, Derby 23.9, Gateshead 15.6, Hull 25.0, Leeds 18.8, Liverpool 25.7, London 21.6, Manchester 24.6, Newcastle-on-Tyne 19.2, Nottingham 22.7, Portsmouth 15.6, Sheffield 22.8, Sunderland 20.7.

METEOROLOGICAL RECORD

For the week ending March 26th, in Boston, according to observations furnished by Sergeant J. W. Smith, of the United States Signal Corps:—

Date.	Baro- meter	Thermom- eter.		Relative humidity.			Direction of wind.		Velocity of wind.		Weath'r. •		Rainfall in inches.
	Daily mean.	Daily mean.	Maximum. Minimum.	8.00 A. M. 8.00 P. M.	Daily mean.	8.00 A. M. 8.00 P. M.	8.00 A. M. 8.00 P. M.	8.00 A. M. 8.00 P. M.	8.00 A. M. 8.00 P. M.	8.00 A. M. 8.00 P. M.			
S...20	29.92	51	60	42	65	43	54	W. W.	W. S.E.	16	16	O. F.	.07
M...21	30.21	42	47	38	53	75	64	W. E.	S.E. S.	6	5	O. O.	
T...22	30.32	41	49	33	82	86	22	W. N.W.	S. N.W.	6	14	O. O.	
W...23	29.78	50	62	37	87	53	70	S.W. N.W.	S.W. N.W.	12	14	O. O.	.08
T...24	30.22	38	39	32	53	73	63	N. S.	S.E. S.	8	11	O. C.	
F...25	30.50	39	43	35	75	72	74	S. S.	S. S.	3	8	C. C.	
S...26	30.79	40	43	38	78	88	83	E. E.	E. E.	12	10	F. C.	.15

* O., cloudy; C., clear; F., fair; U., fog; H., hazy; S., smoky; R., rain; T., threatening; N., snow. † Indicates trace of rainfall. — Mean for week.

OFFICIAL LIST OF CHANGES IN THE STATIONS AND DUTIES OF OFFICERS SERVING IN THE MEDICAL DEPARTMENT, U. S. ARMY, FROM MARCH 26, 1898, TO APRIL 1, 1898.

The leave of absence on surgeon's certificate of disability granted MAJOR CHARLES K. WINNE, surgeon, is further extended six months on surgeon's certificate of disability.

OFFICIAL LIST OF CHANGES IN THE MEDICAL CORPS OF THE U. S. NAVY FOR THE TWO WEEKS ENDING MARCH 26, 1898.

L. G. HENEBERGER, surgeon, detached from the "Maine," and ordered home to wait orders.

S. H. GRIFFITH, surgeon, detached from the Museum of Hygiene, Washington, and ordered to the "Mayflower."

APPOINTMENT.

DR. ROCKWELL A. COFFIN has been appointed assistant to the physicians for diseases of the nose and throat at the Boston City Hospital.

BOOKS AND PAMPHLETS RECEIVED.

Röntgen Ray Skiagraphy. By DeForest Willard, M.D., Philadelphia, Pa. Reprint. 1897.

Solution of the Proprietary-Medicine Question. By C. C. Fite, M.D., New York City. Reprint. 1898.

The Suture-Clamp Operation for Hemorrhoids. By Llewellyn Eliot, M.D., Washington, D. C. Reprint. 1897.

Some of the Therapeutic Properties of the Thyroid Gland. By J. T. Eskridge, M.D., Denver, Col. Reprint. 1898.

Equilibration and Its Relation to Vertigo. By Frank K. Hallock, A.M., M.D., Cromwell, Conn. Reprint. 1898.

Diagnosis in Abdominal Disorders. The Question of Pelvic Support. By Joseph Eastman, M.D., LL.D., Indianapolis, Ind. Reprints. 1898.

Amblyopia from Suppression, Congenital Imperfection or Disease; Which or All? By Leartus Connor, A.M., M.D., Detroit, Mich. Reprint. 1898.

Tumor of the Spine; Compression-Myelitis; Operation; Death on the Ninth Day. By J. T. Eskridge, M.D., and Edmund J. A. Rogers, M.D., Denver, Col. Reprint. 1898.

The International Medical Annual and Practitioner's Index; A Work of Reference for Medical Practitioners. Contributions by thirty-five English and American authors. Sixteenth year. New York: E. B. Treat & Co. 1898.

Memorial of R. B. Leach, M.D., of Minneapolis, Minn., Praying that a Test be made of the Arsenization Method of Treating the Disease of Cholera. Referred to the Committee on Public Health and National Quarantine of the U. S. Senate, February 2, 1898, and ordered to be printed.

A Compendium of Insanity. By John B. Chapin, M.D., LL.D., Physician-in-Chief, Pennsylvania Hospital for the Insane; late Physician-Superintendent of Willard State Hospital, New York; Honorary Member of the Medico-Psychological Society of Great Britain and of the Society of Mental Medicine, Belgium, etc. Illustrated. Philadelphia: W. B. Saunders. 1898.

Some of the Inefficiencies of the Methods Ordinarily Employed by Railway Surgeons for the Detection of Subnormal Color-Perception (Color-Blindness). Clinical History of a Series of Operative Procedures for the Cure of Cicatricial Ectropium from Antral Disease. A Perfected Series of Test-Type. By Charles A. Oliver, A.M., M.D., Philadelphia. Reprints. 1898-97.

Researches on Tuberculosis, the Weber-Parkes Prize Essay, 1897. By Arthur Ransome, M.D., M.A. (Cantab.), F.R.S., Honorary Fellow of Gonville and Caius College, Cambridge; Consulting Physician to the Manchester Hospital for Consumption and Diseases of the Chest and Throat; Late Examiner in Sanitary Science at Cambridge and Victoria Universities. London: Smith, Elder & Co. 1898.

Atlas of Methods of Clinical Investigation, with an Epitome of Clinical Diagnosis and of Special Pathology and Treatment of Internal Diseases. By Dr. Christfried Jakob, formerly First Assistant in the Medical Clinic at Erlangen. Authorized translation from the German. Edited by Augustus A. Eshner, M.D., Professor of Clinical Medicine in the Philadelphia Polyclinic; Physician to the Philadelphia Hospital, etc. With 182 colored illustrations upon 68 plates and 64 illustrations in the text. Philadelphia: W. B. Saunders. 1898.

Introduction to Chemical Methods of Clinical Diagnosis. By Dr. H. Tappeiner, Professor of Pharmacology and Principal of the Pharmacological Institute of the University of Munich. Translated from the sixth German edition, with an appendix on Micro-Biological Methods of Diagnosis. By Edmund J. McWerny, M.A., M.D., Royal University of Ireland, L.R.C.P.I., Professor of Pathology and Bacteriology, C. U. Medical School; Pathologist to the Mater Misericordiae Hospital, Dublin. London, New York and Bombay: Longmans, Green & Co. 1898.

Mammalian Anatomy; A Preparation for Human and Comparative Anatomy. By Horace Jayne, M.D., Ph.D., Director of the Wistar Institute of Anatomy and Biology; Professor of Zoology in the University of Pennsylvania; Fellow of the College of Physicians of Philadelphia, of the American Association for the Advancement of Science, etc. Part I. The Skeleton of the Cat; Its Muscular Attachments, Growth and Variations compared with the Skeleton of Man. With over 500 original illustrations and many tables. Philadelphia: J. B. Lippincott Co. 1898.

The Surgical Complications and Sequels of Typhoid Fever. By William W. Keen, M.D., LL.D., Professor of the Principles of Surgery and of Clinical Surgery, Jefferson Medical College, Philadelphia; Vice-President of the College of Physicians of Philadelphia, etc. Based upon tables of 1,700 cases compiled by the author and by Thompson S. Westcott, M.D., Instructor in Diseases of Children, University of Pennsylvania; Visiting Physician to the Methodist Episcopal Hospital, Philadelphia. With a chapter on the Ocular Complications of Typhoid Fever. By George E. de Schweinitz, A.M., M.D., Professor of Ophthalmology, Jefferson Medical College; Professor of Diseases of the Eye, Philadelphia Polyclinic; Ophthalmic Surgeon to the Philadelphia and Orthopedic Hospitals, and as an appendix, The Tower Lecture No. V. Philadelphia: W. B. Saunders. 1898.

International Clinics, a Quarterly of Clinical Lectures on Medicine, Neurology, Surgery, Gynecology, Obstetrics, Ophthalmology, Laryngology, Pharyngology, Rhinology, Otolaryngology and Dermatology, and specially prepared articles on Treatment. By Professors and Lecturers in the leading Medical Colleges of the United States, Germany, Austria, France, Great Britain and Canada. Edited by Judson Daland, M.D. (Univ. of Penna.), Philadelphia, Instructor in Clinical Medicine and Lecturer on Physical Diagnosis in the University of Pennsylvania, etc.; J. Mitchell Bruce, M.D., F.R.C.P., London, Eng., Physician to and Lecturer on the Principles and Practice of Medicine in Charing Cross Hospital; David W. Finlay, M.D., F.R.C.P., Aberdeen, Scotland, Professor of Practice in Medicine in the University of Aberdeen, etc. Volume IV, Seventh series. Philadelphia: J. B. Lippincott Co. 1898.

Original Articles.

THE CLINICAL COURSE OF PNEUMONIAS IN WHICH THERE IS AN INFECTION WITH STREPTOCOCCI¹

BY FRANCIS P. DENNY, M.D., BROOKLINE, MASS.

PNEUMONIAS caused by the streptococcus are diagnosed in Germany, but I am not aware that they are recognized clinically in this country. As there is practically nothing written in English in regard to these cases, I have thought that it might be well to bring the subject briefly to your attention.

It is well known that other forms of bacteria than the pneumococcus of Fraenkel and Weichselbaum are found in the sputum and lungs of individuals with pneumonia. Chief among these may be mentioned, Friedländer's bacillus, Pfeiffer's influenza bacillus, the Klebs-Löffler and typhoid bacillus, the staphylococcus pyogenes and the streptococcus.

It is also well known by every practitioner that a comparatively large number of cases of pneumonia do not run a typical course. In Osler's "Practice of Medicine" we find a division of the chapter on pneumonia with the heading *Clinical Varieties*. Here he speaks of an "Adynamic Form," and of a "Typhoid Pneumonia" where there is an irregular temperature and a course resembling typhoid, although there is no process in the intestines. He also mentions the "Creeping" or "Migratory" form, where the process seems to wander from one lobe to another. There is the "Apex Pneumonia," which he says is associated with adynamic features and runs a very long course. Probably the most common abnormality is "delayed resolution," which, to quote this author's words, "may be postponed till the fourth, eighth or even the tenth week," and "causes much anxiety to the physician."

Several years ago the opinion was expressed that many of these variations in the clinical symptoms and course of pneumonia would be found to depend on an infection with some other organisms than the pneumococcus. That this was not sooner shown to be true probably lies in the fact that the most reliable bacteriological investigations have been made on autopsy cases. Here the death of the patient has prevented an observation of the typical course of the disease in those cases where there has been an infection with some of the other bacteria. I only propose to report a few of the observations which have been made in regard to those cases where there has been an infection with streptococci.

In regard to the frequency with which streptococci are found at autopsy in pneumonia we find 129 cases reported by Weichselbaum¹ in which streptococci were present in 21, all of these, with two exceptions, being of the lobular form. Pearce,² at the Boston City Hospital, reported streptococci eight times in a series of 121 autopsies of lobar pneumonia; while in broncho-pneumonias—mostly secondary to the acute infectious diseases of children—streptococci were present in about one-half of the cases. These autopsy reports as well as the clinical observations of Neusser and Wasserman³ would go to show that the streptococcus pneumonias are more frequently of the lobular

type, although Weismayr⁴ believed all of his five cases were of the lobar form.

Finkler⁵ was one of the first to make observations on the clinical course of pneumonias with a streptococcus infection. He has reported several series of cases during the past ten years. He described forms where the clinical picture was that of typhoid fever. At another time he reported cases which seemed to occur in epidemics, having an acute and very fatal course. Harbitz⁶ also has reported a similar epidemic form.

That we thus find the streptococci causing several types of pneumonia is not surprising, when we consider the variety of lesions produced by the streptococci in other organs of the body, especially in the skin and subcutaneous tissues, where at one time it causes an erysipelas, at another a deep phlegmonous inflammation, while again, from an apparently similar wound infection, the streptococci enter the circulation and quickly cause a fatal septicemia. Recent investigations, notably those of Petruschky,⁷ go to show that, in the majority of cases at least, these variations in the lesions produced by the streptococci depend on varying degrees of virulence of the organism, and, to a less extent, on varying powers of resistance in the tissues.

The description of streptococcus pneumonias by recent observers corresponds closely with those cases of Finkler which ran a course resembling typhoid. It is to this form that I wish especially to call your attention. Among the recent contributions are those of Wasserman⁸ and Weismayr.⁴ Neusser, also, in his clinical lectures in Vienna last spring showed two of these cases. The clinical picture according to these three men is somewhat as follows:

The onset may be like that of an ordinary pneumonia; often it is less brusque. Malaise, feverish and chilly sensations, pain in the side and cough are usually found. The sputum is more purulent and is less often described as "rusty." Besides the streptococci, pneumococci also are often found in the sputum. The appearance of the patient is characteristic. There is less flushing of the face and the patient has a peculiar septic look. The appearance of two cases which I saw in Vienna was strongly suggestive of a uterine sepsis. The temperature is irregular. There is no crisis, but the temperature comes down by lysis often after a course of three or four weeks. The physical signs in the lungs are usually late in appearing. The upper lobes are more frequently involved than in ordinary pneumonia. There is a tendency for the local process to wander; so marked is this that it has been spoken of as an "erysipelas of the lungs." The most characteristic feature of all is the long duration of the physical signs. Dulness, bronchial breathing, and moist râles may sometimes be heard six or seven weeks after the onset of the disease. As the cough is apt to be troublesome until the resolution is complete the convalescence is fatiguing as well as long. There may be great prostration. Wasserman says it is often months before the patient has recovered from the effects of the severe sepsis.

A series of 39 cases of croupous pneumonia reported by Weismayr⁴ illustrate very well the chief points in the above description. In 34 of these pneumococci alone were found; in five there were streptococci, twice together with the pneumococci, and three times alone.

¹ Read at a meeting of the Norfolk District Medical Society, February 22, 1896.

Of the 34 pneumococcus cases, 27 ended by crisis, four by lysis and three were fatal. Crisis was never later than the ninth day, and with lysis the temperature was normal at latest on the eleventh day. In the fatal cases death occurred on the seventh, tenth and twelfth days. Resolution always took place promptly, never later than the twelfth day excepting in one case when it was on the fifteenth.

In marked contrast to these are the five streptococcus cases. Of these one died on the nineteenth day (this was complicated with diabetes). The other four had an irregular remittent fever lasting in one case until the thirty-seventh day; the signs of consolidation remained until the nineteenth, twenty-second, twenty-fifth and fortieth days. Thus, while the pneumococcus pneumonias had all with one exception run their course by the twelfth day, in these five streptococcus cases the symptoms had not in a single instance disappeared before the nineteenth and were present in others even up to the fortieth day.

The long persistence of the physical signs is the striking feature in these five cases. There is no evidence to show that this delayed resolution depends on a greater firmness of the infiltration as has been suggested by Leyden,⁸ nor had these cases anything in common such as age, sex or physical condition. The only feature in common is the presence of the streptococci. Pneumococci may also be found, and according to some authors the original infection may always be with the pneumococci, but it is the streptococci which modify the course of the disease and give it its characteristic features. Pneumococci are very short-lived, whether growing on media outside the body or in animals after experimental inoculation. Also in the pleural exudation of man they live only a short time. In those cases of empyema where pneumococci alone are found absorption of the exudation will often take place. We have reason to believe that the conditions in the lung are similar, and where there is an active process going on there for a period of more than two weeks we can feel fairly certain that we have to do with some other organism than the pneumococcus—probably it is the streptococcus.

The *diagnosis* of a streptococcus pneumonia must be based on the sputum examination. Given a case which has an irregular course or which presents any of the abnormal features which we have mentioned, one should examine the sputum in order to determine whether streptococci are present. Typhoid fever, the influenza and pulmonary tuberculosis must be excluded. Phthisis is strongly suggested by the remittent fever, the involvement of the upper lobe, and the long persistence of the signs of consolidation, and can often only be ruled out after repeated examinations for tubercle bacilli. In one of Wasserman's cases where there was no sputum to be obtained, a differential diagnosis could only be made with the aid of Koch's tuberculin.

It is in relation to *prognosis* that the recognition of this form of pneumonia has its greatest interest for us at present. For enough evidence has been given to show that where we find streptococci in pneumonic sputum we have strong reason to expect a long and severe course. The family and friends always want to know when the crisis will come; and to be able to say in a case that there will be no crisis, but that the course will be a long and severe one, would certainly be of practical value to the physician. As regards life,

the prognosis seems to be somewhat better than in the ordinary pneumonia. I refer now to those cases of the type which I have been describing, but it must be remembered that streptococcus pneumonias probably also occur in a very fatal epidemic form.

Inasmuch as at present the only *treatment* which we have for pneumonia is an expectant and symptomatic one, the treatment of this particular form will not differ essentially. What naturally suggests itself is the use of an antistreptococcus serum. I have not, however, been able to find any reference to its use for such purposes. In the future when we have an effective serum-therapy in pneumonia—an antipneumococcus and an antistreptococcus serum—the early differentiation of these two forms will be of the greatest importance.

Let me now briefly summarize. German observers have found that when in pneumonia there is an infection with streptococci the disease does not follow the typical course. The chief characteristics are the tendency of the local process to wander, the involvement of the upper lobe, the long and irregular type of the fever and the much delayed resolution. These symptoms are the same as those which we have seen stated by Osler to be the common clinical variations in pneumonia. The question therefore suggests itself, *Are not many of our atypical pneumonias to be explained by an infection with streptococci?* There is much which seems to point to an affirmative answer to this question, but further investigation is necessary.

REFERENCES.

1. Weichselbaum. Wiener med. Jahrbücher, 1886.
2. Pearce. Boston Medical and Surgical Journal, vol. cxxxvii, p. 561.
3. Wasserman. "Ueber Diff. Diagnostik von Lungentzündungen." Deutsch. med. Woch., 1893.
4. Weismayr. Zeitschrift f. klin. Med., vol. xxvii.
5. Finkler. "Die Verschiedenen Formen der Croupösen Pneumonien." Congress f. Inn. Med., 1888.
"Ueber Streptococcen Pneumonie." Congress f. inn. Med., 1889.
"Infectionen der Lunge durch streptococcen und influenza Bacillen," Bonn, 1895.
6. Harbitz. "Atypische Croupöse Pneumonie." Centralblatt f. Bacteriologie, 1895, p. 595.
7. Petruschky. Zeitschrift f. Hyg., xvii, 59; xviii, 413; xxiii, 142.
8. Leyden. Berlin klin. Woch., 1879.

THE EXPERIMENTAL PRODUCTION OF FAT NECROSIS.

BY HERBERT U. WILLIAMS, M.D.,

From the Pathological Laboratory of the University of Buffalo.

In a paper by the writer, published in the *Boston Medical and Surgical Journal* for April 15, 1897, an account was given of certain experiments which sought to discover the cause of the fat necrosis so often seen associated with acute disease of the pancreas. Briefly, the results were as follows: a ligature was placed about the pancreas, with a view to preventing the outflow of pancreatic juice through the duct, but permitting it to escape into the structures about it, and to allow the fat-splitting ferment to act upon the peritoneal adipose tissues. In a part of the cases some of the veins leaving the pancreas were ligated as well, and a solution of continuity in its substance was effected. Among twenty animals, mostly cats, twelve negative and three doubtful results were obtained, while in five cases fat necrosis of a marked type ensued. Inasmuch as an accidental infection with micro-

cocci also occurred in three of the five successful cases, it was not considered warrantable to attribute the fat necrosis exclusively to the action of the fat-splitting ferment of the pancreas.

In order to ascertain whether or not the result was sensibly affected by the action of bacteria, operations of the same sort have since been made upon three other cats, with the addition that in two of them the surface of the pancreas was smeared with a quantity of a fresh culture on agar of the staphylococcus pyogenes aureus, and in the third of the streptococcus pyogenes. In all three animals fat necrosis and pancreatitis ensued. In one case the fat necrosis was trifling in amount; in the other two it was present to a marked degree, although the post-mortem was performed upon one animal only twenty-four hours after the operation. These experiments yielded, therefore, a larger percentage of positive results than those in which bacteria were not added. However, their number was too small to allow far-reaching conclusions to be made, nor did continued research along these lines seem likely to settle the point in doubt.

In the article already mentioned an account was given of an experiment in which a large piece of pancreas was introduced into the abdominal cavity, resulting in accidental infection, and showing the great difficulties lying in the way of securing conditions of sterility by that plan of procedure.

It was next attempted, therefore, to introduce portions of fresh pancreas into the subcutaneous adipose tissues of cats. Numerous efforts to demonstrate bacteria in the freshly excised, healthy cat's pancreas placed on agar in the incubator found it sterile in every instance. Owing to the instability of the fat-splitting ferment, and the dangers of contamination, it was considered best to employ the substance of the pancreas itself, rather than an extract. Using every precaution to ensure sterility, pieces of cat's pancreas two to four millimetres in diameter were placed directly in the subcutaneous adipose tissues through small incisions in the skin. Bits of sterile black silk were introduced with the pancreas to mark the spot. The incisions were closed with sutures and collodion. The inguinal regions and a point a little below the sternum were the situations selected. This plan was employed in seven places upon four cats. Suppuration always occurred in from four to five days, and the results, as far as fat necrosis was concerned, were negative or indecisive, though it appeared to have occurred in some instances. Cultures were not made from the abscesses, but it was evident that they proceeded from infection. It was impossible to determine how far the alterations in the tissues were to be attributed to bacteria and how far to the working of the pancreatic ferments. In order to observe the effect of perfectly sterile pancreas upon the adipose tissues, the following technique was devised: A canula made of glass tubing was sterilized in a Petri dish, and a piece of freshly excised cat's pancreas one to two millimetres in diameter was placed in the large end of the canula with a bit of sterile black silk. It was forced along to the small end with a stiff platinum wire. The skin of the cat to be operated upon, which was also anesthetized, having been shaved, cleaned and rendered aseptic as far as possible, a small incision was made through it. The adipose tissues underlying it were nicked with a knife. The small end of the canula was then forced into the adipose tissue three or four centimetres. The

pancreas and bit of silk were pushed out of the canula by the wire, depositing them in the desired locality, when the canula was withdrawn. The surface was closed with one or two sutures, and covered with collodion.

The success of this plan was very gratifying. In seventeen experiments made according to it upon nine animals, eleven were successful in avoiding infection, two were doubtful in that respect, while infection occurred with certainty but four times. The piece of black silk served admirably to identify the point of introduction. In each of the experiments the result was tested for by an inoculation made on agar from this point. Alterations in the fat cells similar to those seen in fat necrosis, and described in the article above mentioned, were detected in the region where the pancreas was introduced in six of the eleven cases where infection was avoided, as well as in the two that were regarded as doubtful. The same alterations were observed in some of those where suppuration took place, but it seemed best to discard these results entirely. It appears probable, therefore, that some substance contained in the tissues of the pancreas, doubtless the fat-splitting ferment, is capable of producing changes in fat cells similar to those seen in fat necrosis.

It is the writer's intention to publish hereafter a detailed account of these experiments, and a more minute description of the changes produced in the adipose tissues.

Clinical Department.

REPORT OF FOUR CASES OF HYSTERECTOMY FOR FIBROIDS.¹

BY SARAH E. PALMER, M.D.,

Assistant Surgeon to the Woman's Charity Club Hospital, Attending Physician and Surgeon to the Pope Dispensary of the New England Hospital.

FIBROID tumors of the uterus are composed of increased growth of the fibrous and muscular structure of the organ. The tumor, then, consists of a variable quantity of fibrous and muscular tissues derived from the parenchyma of the uterus.

The tumor may become cystic. It may degenerate and become calcareous, as in the case reported by Dr. M. L. Harris, calcified uterine fibroid removed from woman of seventy years, in whom it had been known to exist forty years. The weight of opinion is that fibroids do not become malignant, although malignant growths may be associated.

They may be of any size and the symptoms caused by the neoplasm is not dependent upon the size, but rather on the position. All growths are probably at first interstitial, and then pushed in one direction or the other. The course is usually quiet, but progressive, though rarely rapid and fatal.

The cause of danger then is found in the relation to the other structures rather than in the nature of the growth itself. Hemorrhage, so often and commonly the most serious symptom, is caused by the increased growth of the uterine mucosa, due to the presence of the fibroid. It is always to be remembered that the initial hemorrhage may be nearly fatal, as in the case shown to-night.

Pressure on the ureters and a general disturbance

¹ Read before the Suffolk District Medical Society, December 22, 1897.

of abdominal circulation may cause nephritis, and correspondingly increased vascular pressure result in heart lesion. Hofmeier, in 1884, collected 18 cases of sudden death from heart failure, due to fibroids. Pressure on neighboring organs often causes functional disturbance. For instance, on the bladder, causing disturbance of urination; on the rectum, constipation, often obstinate.

Pregnancy may exist in a fibroid uterus and present a variable course. Premature delivery is sometimes caused by irritation, or the tumor may be lifted out of the pelvis and give very little discomfort. There may or may not be mechanical interference of labor. Tumor may disappear after delivery, as in four cases reported by Dr. Balerei in 1896. Or the growth may be stimulated, or it may slough from pressure and cause death from septic absorption, as in a series of cases recently reported with death from septicemia after labor, from sloughing fibroids.

At the menopause the neoplasm often undergoes atrophy, but it may increase in growth and long defer the climacteric.

Many cases of fibro-myoma are undiscovered until the autopsy after death from some other cause. Others give rise to no symptoms and are discovered accidentally. Still others cause serious and sometimes fatal results.

Treatment may be divided into medical and surgical. Under medical, use of astringents to check hemorrhage and of hydrastis and ergot to stimulate contraction, in the hope of causing absorption or expulsion through the cervix and vagina. Of late, experiments have been made with the thyroid gland with not very flattering results. Ergot or its derivatives, given hypodermically or by the mouth, is the drug which has given most encouraging results. The electrical treatment has been of varying kinds. The best known is the method developed and so successfully carried on by Apostoli, of Paris, which in hemorrhagic cases has often done good service, but the ultimate results in decreasing the size and causing the disappearance of the tumor have not fulfilled the early promise.

Under surgical measures we have both conservative and radical. Under conservative operations tying the uterine arteries, decreasing the blood supply. The results are, however, uncertain. Goelet has reported some successful cases without incident. The failures, however, are estimated at 10 per cent., and the operation is open to the danger of injury to the ureters, hemorrhage and shock. Vineburg reports sloughing of the cervix in three cases with increased growth and hysterectomy ultimately.

Salpingo-oöphorectomy to artificially hasten the menopause and by lessening the nervous stimulus to check the growth.

Myomectomy originated by Martin of enucleating the tumors through the vagina by morcellation, or by the abdominal route.

Hysterectomy, vaginal or abdominal, is resorted to in those cases in which the more conservative methods of treatment, medicinal or operative, are inapplicable.

Of late the wider knowledge of the rôle of micro-organisms in disease and the practical application of the knowledge in improved methods to promote aseptic conditions has greatly lowered the mortality. In 1891, Pozzi gives a mortality of over 21.2 per cent. Keith with a mortality of 8 per cent., yet considered it too large to justify operation, except in extreme cases.

The social state undoubtedly largely affects the question of operation, as in Case II, where a patient was unable to make her living.

The following reports comprise a series of four successive cases of abdominal hysterectomy, all recovered and the three working women are able to resume their occupations in comfort.

All the cases were prepared, with the exception of the fourth, an emergency case, with a surgical bath on the night preceding the operation, a soap poultice over the abdomen, after a thorough scrubbing, a second scrubbing with sterile water, alcohol and corrosive followed by a corrosive pad until the time of operation. The bowels had been thoroughly moved two days preceding and kept liquid. The bowel was irrigated the night preceding and the morning of the operation. No food, save a cup of black coffee, was given for eight hours preceding. One ounce of whiskey by the rectum and one-hundredth of a grain of atropia under the skin one-half hour before the administration of ether.

Ether was the anesthetic, and a quart of normal salt solution was given by the rectum before the patient was returned to bed. The vagina was thoroughly disinfected. In all cases the cervix was left, canal cauterized from above, and the stump closed over with catgut, the peritoneum being closed over that, after the manner suggested by Goffe, making the stump extra-peritoneal. Catgut was the suture material employed and silver wire for the fascia. Wound was closed in layers, the skin by buried suture, fascia by buried silver wire.

The catgut, obtained from Baltimore, was prepared by the method of Dr. F. W. Johnson, soaked in ether for one week, in absolute alcohol for twenty-four hours, stretched and cut in thirty-inch pieces, wound in coil, folded in paraffine paper, baked in dry oven at 60° C. one hour, and the next day at 180° C. for one hour and 140° C. for three hours, and examined by Dr. E. A. Darling, of Harvard bacteriological laboratory, and found sterile.

CASE I. R. N., married, forty years of age. Complaints of bearing down, of pain in back and side; dysmenorrhea followed by weakness, amounting of late to prostration. Patient is extremely nervous, and on examination had hysterical convulsions. She had married at seventeen; four children; no miscarriage. Menstruation established at sixteen, regular and painful.

Physical examination showed complete laceration of the perineum through the sphincter ani into the rectum. Uterus enlarged, fibroid in posterior wall adhered to rectum, and acts as a ball-valve closing the lower bowel. Patient entered the hospital April 19, 1896, prepared for operation after the manner indicated above. Vagina cleansed and cervix closed with silk.

Operation, April 21st. The fibroid uterus torn out of the adhesions to the rectum; ovarian arteries tied on either side; broad ligaments cut and clamped down to the uterine artery, which was tied; bladder separated in the front; uterus separated from the cervix about the vaginal junction; canal seared with thermocautery; cervix sewed over; broad ligament on left side closed with a whip-stitch; peritoneum brought together over the cervix, extending up in the same manner over the right side.

The patient stood the operation very well; codeia (one and one-half grains) given for pain, and repeated

in two hours; strychnia (one twenty-fifth grain) every two hours for four doses.

Convalescence complicated by great difficulty in feeding. The thought of milk, or indeed any form of liquid food, was abhorrent to her. On the second day patient seemed likely to fail from starvation; nourished through the rectum, which was somewhat difficult because of the lacerated sphincter. She told me at this time she thought she would go home, she liked the cabbage and beef so much better than the milk they gave her. Nervous and slept poorly. At the end of a week temperature rose to 103°, pulse 120; and staid three days, evidently from the silk used in the vagina.

Discharged May 18th, well.

July 14th she came in, free from her nervous disturbance, and begged me to take her to the hospital for repair of the sphincter ani, which I did, July 24th, by Tait's method with perfect result.

This patient I have seen to-day in splendid condition, free from her old symptoms.

CASE II. J. Q., thirty-nine, widow for fourteen years. Menstruation always profuse; has increased during the past nine months, accompanied by severe pain in the left side, recurring at intervals of two or three weeks; lasts about a week. The profuse flow and accompanying pain has kept her in bed much of the time. She has, therefore, been obliged to give up her occupation of detective in one of the large stores. Patient was strong in early life. Menstruation at first regular. Married at twenty-four; husband died in nine months. Five years ago had severe hemorrhage.

Physical examination showed the uterus irregularly enlarged, hard, drawn to the left side. Diagnosis, fibroid with adhesions.

Operation, December 21, 1896, assisted by Dr. Grace Walcott. Uterus with two interstitial fibroids. Operated as before, with the exception of the silk in the vagina. Recovery uneventful. Patient discharged well at the end of three weeks. She came to the office this week in perfect health.

CASE III. M. E. P., single, forty-seven; works in a straw factory. Patient complains of pain in the left groin and back, of constipation, of frequent and painful urination; appetite capricious; marked mental depression. Menstruation established at sixteen; somewhat too frequent and profuse from the first. For the past few years, interval between the flow, of two or three weeks. Flow very profuse, and accompanied by discomfort rather than pain. Father died at thirty-four, from typhoid fever; mother at sixty-four, from cancer.

Patient entered the Deaconess Hospital, May 30th, and the operation was done two days later.

Physical examination showed tumor and uterus in one mass about the size of a child's head.

Slight edema of feet and legs reported when patient was at work; none noticed at the time of examination. Examination of urine negative.

Hysterectomy was done as in Case II, assisted by Dr. F. W. Johnson. Patient did well for a few days; then a slight rise of temperature. Wound was examined, and found to have suppurated superficially. However, she made a fine recovery. After a long investigation by the superintendent of nurses and myself, it was proved with little question that the towels supplied had been used in a case of mastoid abscess and had not been thoroughly boiled. The Arnold sterilizer was used, and, as is well known, the heat

and pressure is not sufficient to kill germs already present. The trouble began superficially; the towels were freely used about the wound. Patient reports at the office this week in fine condition. Returned to her work in the straw-shop, and says that the awful depression of her mind has gone, and that she no longer wants to die.

The oculist finds that she can dispense with distance glasses, from the improved muscular condition of the eye. Two of the silver stitches have come out this past month.

CASE IV. L. H., single, twenty-six, feather-curler by trade. With the exception of infantile paralysis, which left her very lame, patient was well until 1893. Menstruation established at fourteen. Regular and not profuse at first. In 1893, when twenty-three years of age, the flow became irregular. Through that year the history was of amenorrhea of two or three months, each time followed by profuse flow. She came to the dispensary, and a fibroid tumor about the size of a three months' pregnancy was found. She improved somewhat under medical treatment. In August of 1894, hemorrhage from the uterus; curetted under ether, and afterward, in absence of the author from the city, she was put in the care of another doctor. All palliative measures failing, she was sent to the New England Hospital, and salpingo-oöphorectomy performed. Patient was thought too weak for a more radical operation.

The tumor seemed to decrease somewhat in size after this; but the result was as before; amenorrhea for two or three months, followed by profuse flow. Called to see her in December, 1896. Flow amounted to hemorrhage. Curetting under ether. Patient too far exsanguinated to be moved or bear further interference. No flow for fourteen weeks, save a slight discharge. She rapidly gained health, strength and flesh.

May 21st, the flow began again; and, contrary to advice, she waited for hemorrhage before sending. Was removed at once to the Deaconess Hospital.

Admitted to the hospital May 28th. Temperature 99°; pulse 88. Loud anemic murmurs over base of heart. Next morning pulse had increased to 104, and temperature to 101°. Flow continued in spite of palliative measures, and patient was now exsanguinated. Immediate hysterectomy decided upon, in view of her past history. During the operation patient's pulse was very rapid and weak; she was kept alive with strychnia and digitalis and other stimulants; (four quarts of normal salt solution was given into the tissues). Uterus and tumor delivered with difficulty on account of former operation which had shortened pelvic ligaments and formed adhesions. The omentum was especially troublesome, large vessels were tied off. Bladder—adhered in a very curious manner—high upon the tumor, the right side extending up on to the broad ligament. At the sides and in the ligament a large plexus of veins above the uterine artery showed a condition in which it would have proved very difficult to control hemorrhage by the vaginal route.

Operation as before, assisted by Dr. Clara Alexander.

Convalescence was complicated by an irritable stomach, and a profuse watery discharge from the vagina, of which Baldy speaks in some of his cases. She, however, went home June 17th, three weeks after the operation. Is now well and able to work nights as never before since the first symptoms, in 1893.

The writer would not be understood to advise hysterectomy where myomectomy is applicable.

In the cases reported the relation of the uterus to the growths was such that hysterectomy seemed the wiser course, with less shock to the patient.

In all the cases an earlier operation would have conserved both time and strength. In all, great improvement in the nervous condition is marked.

Of late the writer has modified the closing of wounds, using silkworm-gut and the Noble stitch for the fascia, the muscle being united by interrupted catgut, the fat and skin by through-and-through silkworm-gut.

CÆSAREAN SECTION.¹

BY THEODORE C. EBB, M.D.,
Obstetric Physician to St. Elizabeth's Hospital.

THE spirit of the obstetrician to day is conservative. His duty is to serve the mother and patient and to save and not destroy fetal life. Craniotomy upon the living fetus is in direct violation of all principles of surgery, unjustifiable from any standpoint whatever. The craniotomist in a case where the mother's pelvis does not permit the child's birth in the natural way defends his position by saying, "If craniotomy is not performed both mother and child must die, while if this operation be done on the fetus, the mother at least will survive." But a living fetus need not be sacrificed, for a Cæsarean section comes to its rescue. The field of operation for embryotomy cannot be rendered fully aseptic and should incidental lacerations of tissues occur, which are very likely in a diminished parturient canal, we may have sepsis, peritonitis, salpingitis, ovaritis, etc., not knowing whether the mother's life is to be ended by one or all of these together. The defenceless fetus *in utero* has rights which must be respected and the wilful and premeditated destruction of the child's life has long ago ceased to be a justifiable procedure. Aseptic surgery and an improved operative technique have established the Cæsarean section as a rational and scientific procedure. I will briefly mention a case.

Mrs. G., thirty-eight years of age, seventh pregnancy, was seen August 31st, with Dr. J. J. Cronin. She had been in labor about thirty hours, the membranes having ruptured spontaneously nearly twenty-four hours before. The os was nearly fully dilated; position of fetus, O. L. A., and fetal heart 140 per minute.

The history of former pregnancies was as follows: At the first delivery the child was born dead. The second and third children were delivered alive. The remaining three pregnancies all resulted in the death of the children during the delivery. Forceps or version were done each time at five of the deliveries and once embryotomy. All six confinements occurred in Philadelphia.

Measurement of pelvis showed the distance between the anterior superior spines to be 9 inches; crests, 10 inches; external conjugate, 7 inches; and conjugate vera, about 2½ inches.

Full surgical anesthesia was given, and dilatation of the os completed. The occiput had not fully engaged, and forceps with axis traction were applied three times, each time slipping, and once tearing the cervix slightly. Version was not tried because of the dry uterus and justo-minor pelvis.

¹ Read before the Suffolk District Medical Society, Dec. 22, 1897.

Taking into consideration the existing conditions with the child's head at the brim of a small pelvis, with a conjugate vera of about three inches, the performance of Cæsarean section offered the best chance for the life of the mother and the only chance for the preservation of the life of the child. There was a chance of non-union and perhaps the addition of forceps or version were symphyseotomy tried. Just before patient was prepared for the laparotomy the fetal heart was found to have increased to 176. The patient was antiseptically prepared for the operation. Vagina was washed with soap and water and douched with solution corrosive sublimate, 1 to 8,000. The abdominal wall was scrubbed with green soap and water, followed by permanganate and oxalic solutions, corrosive 1 to 1,000, ether and absolute alcohol.

The incision, about four inches long in the median line, between umbilicus and pubes, was enlarged upwards to allow removal of uterus from the abdominal cavity. The placenta was located on right of median line. A rubber ligature was placed about cervix ready to draw taut should the hemorrhage become uncontrollable. The incision in the uterus came over the child's back and admitted easy extraction of the child. The cord was immediately tied, and the child was handed to Dr. H. J. Keenan, for resuscitation. After removal of placenta, the uterus immediately contracted. About three or four ounces of blood were lost. A subcutaneous injection of ergotin (two grains) was given.

A vaginal laceration was produced in the right lateral cul-de-sac of sufficient size to exhibit a full view of the os when the fundus was tilted backwards. This rent was immediately sutured with kangaroo tendon. Two layers of kangaroo-tendon sutures were placed in the uterus, and the abdominal wall closed with silkworm-gut. Time of operation about thirty-two minutes. Maternal pulse 120. Salt solution was given by rectum.

Dr. Cronin said the temperature ranged from 100° to 103.5° during first few days following operation. The pulse never rose above 120. Considerable distention accompanied this; but after a few doses of saturated solution of epsom salts, it disappeared, and the patient made a good recovery in four weeks. The child, a female, weighed eight and a half pounds, and showed one forcep mark on her head, which soon disappeared.

The patient was etherized by Dr. T. J. Reardon, and Dr. J. B. Lyons assisted during the operation.

Cæsarean section was first done on the living mother about 1498. In the earliest cases the uterine wound was not closed because the contractions and retractions were thought to tear out the stitches. It was in this century that sutures were introduced, but the death-rate remained high until Porro, in 1876, introduced his method of amputating the uterus and including the stump in the abdominal suture. The greatest advance was made in 1882, by Säger, of Leipsic. He introduced a strict antiseptic technique, closure of the uterine wound by a largely increased number of interrupted sutures to get early union of peritoneal surfaces, and lastly, deliberation in selecting the operation of abdominal section for the case in hand and before onset of labor, and the performance of the operation before the patient's strength had been exhausted by repeated examinations or vain attempts to deliver by forceps or version.

In elective cases it is better to perform the section

just at or before labor commences, because the patient can have better preparations for a laparotomy. The objections often urged against performing the operation before labor begins, that is that hemorrhage might occur on account of imperfect uterine contractions and that sepsis might occur because of retention of lochia, are theoretical. Experience has proved both of these objections to be wrong, for the uterus does contract well when emptied so prematurely. The dilatation of the os before commencing the section will overcome the second objection.

After forceps or version fail in the attempts at delivery, the child being still alive, the question arises whether to perform a Cæsarean section, a Porro, or a symphyseotomy, and thereby place craniotomy in the position it should occupy—an operation to empty the uterus of its dead fetus. Induced labor in contracted pelvis in days of modern surgery should be avoided. The uterus serves the physician as the best incubator, and the patient should be allowed to go to full term, and it should be decided which of the three operations seems best to perform.

In deciding between Cæsarean section and symphyseotomy in a pelvis of eight centimetres with a well-formed or large-sized child, the rule is, that symphyseotomy is indicated. With a conjugate of seven centimetres or less, with the same conditions, the Cæsarean operation should be chosen. Symphyseotomy, then, comes in to limit the Cæsarean section. If called in due time to such a case, careful measurements should be made, the relation between the size of the fetal head and the pelvis carefully noted, also the degree of ossification of the fetal head. The history of previous confinements should be considered. Only through the deliberate election in a given case, of an operative procedure, can the obstetrician plead he has done his whole duty by the two beings whose life depends on his skill. Oftentimes forceps or version must be added to the symphyseotomy, thereby diminishing the chance of a living child.

The possibility of a living child is greatly increased in the Cæsarean section, and as a whole the section seems better, since in some of the latest reports 234 symphyseotomies performed in Germany give a maternal death-rate of 10.5 per cent. and child's mortality of 20 per cent. In Germany, Shauta operated on 15 cases by Cæsarean section without a death; Leopold on 17 cases with 3 deaths; and Zweifel on 29 cases with 1 death. If we have an operation, which is especially done to save the life of the child and yet gives a death-rate of 20 per cent., the more strongly we adhere to Cæsarean section the better.

Comparisons of the statistics of the Cæsarean section and the Porro-Cæsarean operations are misleading because of the widely different conditions under which they are performed. The Porro, no doubt, produces the most shock; but in either Porro or Cæsarean, the patient ought to recover when the operation is performed skilfully and expeditiously. At first the mortality for Porro was 57 per cent. diminishing to 50 per cent. and, according to the latest reports, to 25-38 per cent. The Porro is indicated in pelvic tumors obstructing the parturient canal, carcinoma of uterus (especially when the disease is located in cervix), uncontrollable uterine hemorrhage presenting itself during Cæsarean section, and lastly and by far the most frequent indication in uteri where *sepsis* is suspected.

In dealing with an infected uterus it is perfectly

justifiable to do a total hysterectomy instead of attempting to do the impossible, to cure the patient by a Cæsarean section. It does not seem justifiable to remove healthy uteri, healthy tubes and ovaries in performing abdominal section. The patient may become pregnant again. That does not concern us. Statistics show that repeated Cæsarean sections may be done with as much safety as the first. The question of removal of tubes and ovaries to prevent further conception should be decided between patient and operator. The mother has the right to decide about her relations to her husband and her power of bearing children. That is an ethical point the physician has no right to decide. It seems right then for a *woman*, who is in a condition where natural delivery is impossible, to *make* the choice, if the risk of stopping procreation be no greater than the risk of continuing it. Should she decide in the affirmative, it seems it ought to be done in a safer way than by removing the uterus—simple removal of ovaries.

In conclusion: There is no operation in obstetrics where decision plays a more conspicuous part in the prognosis than in Cæsarean section. When it is performed after the mother and child are exhausted the mortality is necessarily high; but the elective Cæsarean section, on the contrary, subjects the mother to about one risk—septic infection—while the child's chances are almost nothing. Faulty technique or sepsis has been the cause of such a high mortality in the past. To day the death-rate has been lowered to about the same rate which accompanies difficult embryotomy.

In 13 cases operated upon before labor had begun, 10 women and 13 children recovered. Two mothers died of sepsis and one of hemorrhage. Of 6 cases operated upon at the beginning of labor, 6 women and 6 children recovered. Of 12 cases, where the women had been in labor from two to six hours, 10 mothers and 11 children survived. Of 18 cases where the mothers had been in labor from nine to twelve hours, 8 mothers and 18 children were saved. These statistics speak well for elective Cæsarean section. The figures of individual operators give a mortality from 0 to 10 per cent., and a saving among children of 90 to 95 per cent.

Cæsarean section is the rational procedure in conservative modern surgery, because by its successful performance two lives are saved. It is evidently the scientific procedure, because in the latest statistics the maternal death-rate is as low as other obstetric operations, and because the loss of children is much less.

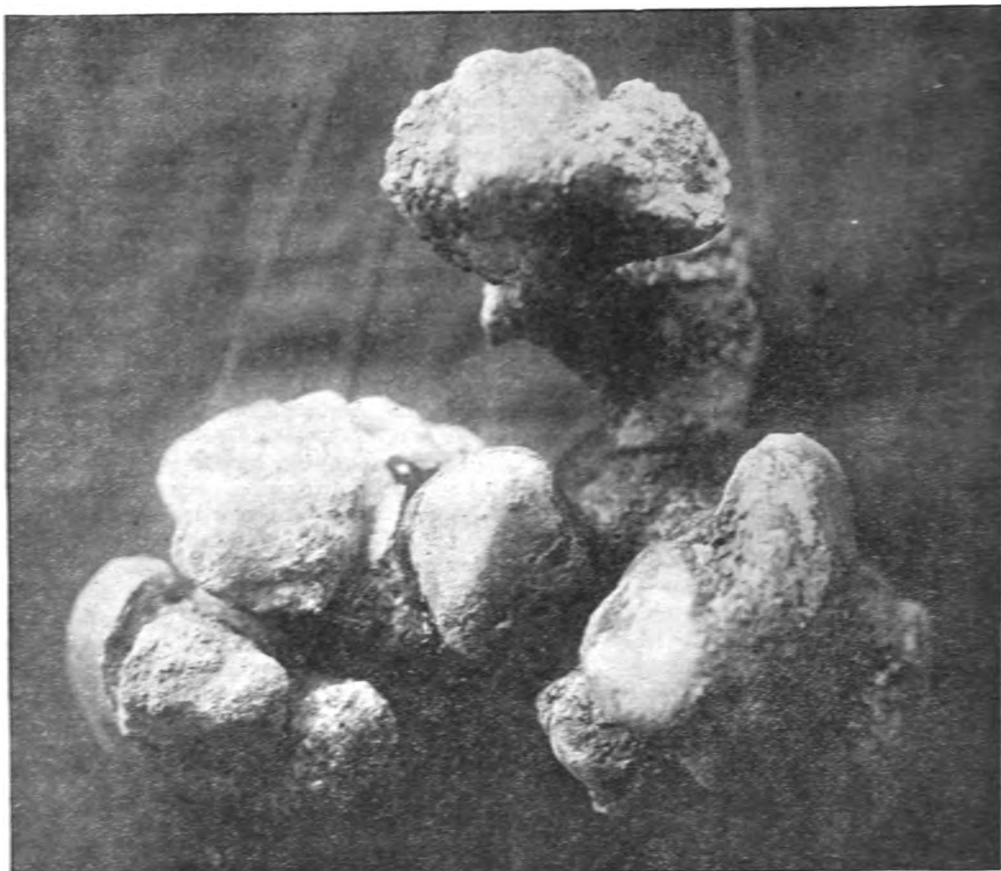
Senn states that Cæsarean section will always hold a permanent place in obstetric practice as a legitimate procedure and that at no distant date it will limit the Porro to cases in which the uterus itself constitutes a source of immediate or remote danger. The maternal mortality diminishing during the last thirty years from 56 per cent. to from nothing to 10 per cent. is surely a result of which modern abdominal surgery and obstetrics may be justly proud.

INCREASE OF PHYSICIANS IN GERMANY.—According to the *Deutsche Medicinal Kalender* there were 24,873 physicians in the German Empire in the year 1897, a ratio of 4.5 physicians to 10,000 inhabitants. In 1883 the ratio was 3.33 to 10,000; in 1890, 4 to 10,000. Berlin with 1,750,000 inhabitants, has 2,196 physicians, or 1 to 800, while ten years ago there was but one physician to 1,218 inhabitants.

LARGE RENAL CALCULUS.

BY FRANK E. PADDOCK, M.D., PITTSFIELD, MASS.

At an autopsy recently upon the body of an elderly lady, seventy-six years of age, I removed the largest renal calculi I have ever seen. The enclosed photograph is a representation of the actual size of the calculous mass removed from the left kidney. The mass weighs seven and one-half ounces. In the right kidney was found a similarly shaped formation weighing five ounces; the latter crumbled while being removed. They are apparently largely composed of the phosphate of lime.



About thirty years ago, the lady from whose body the calculi were taken had an acute nephritis from which she apparently recovered within a few weeks, and was able to be about ever afterward, except that occasionally she was confined to her bed for a few days at a time, until within two months of her death, which was finally caused by uremia. For twenty-five years her urine contained pus in large quantities, and often she had quite profuse hematuria.

During the thirty years intervening between the first attack of nephritis and her final illness—two months previous to her death—she never had headache, anorexia, anasarca or insomnia. I never knew her to have chills or increase of temperature. She was a healthy-looking woman, except for a constant paleness of complexion.

The kidneys were greatly distended, forming two masses, each holding more than a pint, and both pus.

Medical Progress.

RECENT PROGRESS IN PHYSIOLOGICAL CHEMISTRY.

BY HENRY F. REVER, M.D., BOSTON.

THYROID CHEMISTRY.

SINCE the discovery of the relation between disordered states of the thyroid secretion and certain pathological conditions of the organism, and the resulting use of thyroid therapy, great interest has developed in regard to the physiological action of the thyroid se-

cretions, and to the chemical nature of the substance in which this action is due.

Of the investigations in regard to the nature of the physiologically active substance of the thyroid, that of Baumann has given the most satisfactory results.¹

This author has isolated a definite substance from the thyroid glands of man and of animals, thyrojojin, or jodothyryn, which produces upon the organism, according to his experimental researches, the same effects which are obtained by the administration of the fresh thyroid gland.

Thyrojojin is an organic iodine compound containing 9.3 per cent. of iodine. The ultimate analysis of the compound is not published. It contains P_2O_5 and nitrogen, and does not give the reaction for protein, resembling a disintegration product of nucleic acid. It exists in the gland, in part free and in part in combination with proteids.

¹ Baumann: *Zeitschr. f. Phys. Chemie*, Bd. xxi, s. 319.

It is isolated as follows: Finely divided gland substance is boiled four to eight hours in 10 per cent. H_2SO_4 , the fluid cooled in ice-water and filtered. The brown precipitate is washed with water, boiled in 90 per cent. alcohol, the alcoholic extract evaporated, the residue rubbed with ten times its weight of lactose, the fat separated by mixing with naphtha, and the residue dissolved in cold dilute sodic hydrate and filtered. The alkaline fluid is acidified, the thyroiodin precipitating in flakes. This precipitate is further purified by redissolving and re-precipitating. The thyroiodin thus obtained is a brown powder, insoluble in water, soluble with difficulty in hot alcohol, very soluble in caustic alkalies.

Doses of one milligramme of this thyroiodin give the physiological effects obtained by administration of the thyroid gland. The action is not due to the iodine of the compound alone, but to the special organic iodine compound.²

The author reports that the results of the treatment of myxedema and parenchymatous goitre by thyroiodin are the same as in the treatment with the fresh thyroid gland. The results of treatment are more rapid with the thyroiodin than with the fresh gland, owing probably to its more perfect and more rapid absorption when given freed from the glandular tissues.³

The author's results in regard to the physiological action of thyroiodin are confirmed by F. Voit,⁴ Roos,⁵ Magnus-Levy⁶ and others. His report in regard to the action of the product in diseases of the thyroid has been confirmed in myxedema by Ewald and Leichtenstein, and in goitre by Roos and several others.

That the compound is a perfect substitute for fresh thyroid in all conditions of thyroid disease, is doubted by Gottlieb.⁷ This author reports that the effects of extirpation of the thyroid in dogs could not be stayed by administration of thyroiodin, while it could be by doses of fresh thyroid. In opposition to these results of Gottlieb, Baumann and Goldmann in a series of experiments, found that the effects of extirpation of the thyroid in dogs were remedied by administration of thyroiodin quite as successfully as with fresh thyroid.⁸

Following the discovery that the usefulness of the thyroid therapy in parenchymatous goitre is due to the action of this iodine compound, Baumann has investigated the iodine content of the thyroid gland of men and animals in localities where goitre is endemic, and in localities where it is rare.⁹ The results show that in Freiburg, where goitre is endemic, the iodine content of the thyroid is much lower than in Hamburg and Berlin where goitre is rare. The author concludes that there is a definite connection between the iodine content of the thyroid glands and the frequency of goitre in special regions.

The author shows further that the iodine content of the thyroid is increased by the administration of iodine or food rich in this substance.¹⁰

The conclusion of Baumann in regard to the connection of the iodine content of thyroids and goitre is not supported by the observations of Oswald in Switzerland.¹¹ This author found no such connection. In

some regions where goitre was endemic the iodine content of the thyroid was higher than in regions where it was unknown.

THYROID ADMINISTRATION AND METABOLISM.

Fritz Voit¹² summarizes the results of investigation on the influence of administration of preparations of the thyroid gland upon metabolism.

Practically all observations agree that the administration of preparations of thyroid substance, inclusive of jodothyron, the supposed active substance of the gland extracted by Baumann, causes a general increase in the body metabolism. A large number of investigations record a considerable increase in the elimination of nitrogen. In a less number of cases, the excretions of chlorine, phosphoric acid and water have been investigated, and found increased. The investigations on the respiratory quotients and the excretion of CO_2 are few. Such as exist show an increase in the elimination of CO_2 , an increased intake of O and a diminished respiratory quotient, suggesting an increased fat metabolism.^{13 14}

Voit records the result of a very complete investigation of the metabolism of a dog under the administration of thyroid preparations.

In Experiment I fresh thyroid preparations, with high calorie feeding, were given; in II, the same, with no feeding; in III, jodothyron, with high calorie food; in IV, the same, with hunger.

In I, II and IV the excretion of nitrogen, and of CO_2 and of urine were estimated.

In III the excretion of nitrogen, CO_2 , P_2O_5 , and water, the intake of oxygen and the respiratory quotient were estimated.

The results showed, in all experiments, an increase of nitrogen, and of CO_2 elimination. The nitrogen excretion was greater proportionally in the hunger experiments (II, IV), the CO_2 in the feeding experiments (I, III).

The cases on high calories feeding gained weight but lost in proteid content, the gain being due to fat. Less fat was gained during the administration of the thyroid than in the periods before and after, when the dog took the food only.

The hunger cases lost weight, both proteid and fat.

In Experiment III nitrogen, CO_2 and H_2O elimination was increased; P_2O_5 elimination was unchanged; the intake of oxygen was increased; the respiratory quotient sank.

The results agree with the summarized results of general investigation. They show increase of the metabolism of proteids and fats in the body. The author shows further by his estimations that the increased proteid waste is due to a direct action of the thyroid substance upon the proteid tissues, and not to an indirect action upon these through the removal of the proteid sparing action of the fat, by primary destruction of the fat.

These results have a direct application to the practice of the administration of thyroid preparations as a therapeutic agent. While this treatment is undoubtedly efficacious in certain conditions, it must necessarily entail a waste of the proteid substances of the body, even where the amount of food given is sufficient to increase the patient's weight. The evil which may

² Baumann: Loc. cit., Bd. xxi, s. 493.

³ Roos: Loc. cit., Bd. xxii, s. 16.

⁴ F. Voit: Zeitschr. f. Biologie, Bd. xxxv, s. 116.

⁵ Roos: Zeitschr. f. Phys. Chemie, Bd. xxii, s. 16.

⁶ Magnus-Levy: Deutsch. med. Woch., 1896, No. 31.

⁷ Gottlieb: Loc. cit., 1896, No. 13.

⁸ Munchen. med. Woch., 1896, No. 47.

⁹ Baumann: Zeitschr. f. Phys. Chemie, Bd. xxii, s. 1.

¹⁰ Baumann: Munchen. med. Woch., 1896, No. 47.

¹¹ Oswald: Zeitschr. f. Phys. Chemie, Bd. xxiii, s. 266.

¹² Zeitschr. f. Biologie, vol. xxxv, p. 116, 1897.

¹³ F. Voit: Loc. cit.

¹⁴ This increased gas exchange is more marked in fat persons and myxedema. Magnus-Levy found it very slight in the normal.

ensue in this loss of proteid substance must be balanced against the benefits of the treatment in other ways, in the use of the remedy in a given case. In myxedema the balance is in favor of the treatment; in obesity it may be against it.

ABSORPTION OF FAT.

The investigation of Moore and Rockwood upon the absorption of fat in the intestine marks a fundamental advance in our knowledge of this subject.¹⁵ The theory that the fat was absorbed in the intestine, in the form of an emulsion of natural fat, was formerly the accepted theory upon this subject. In recent years this theory has been discarded by various observers for the following reasons:

(1) Careful observation has failed to reveal the passage of fat globules in the striate border of epithelial cells of the intestine where fat absorption is going on.

(2) The formation of the fat globule shows a gradual advancement in size in absorption, arguing for a gradual formation from solution, not an absorption of globules from emulsion (Krehl and Altmann).¹⁶

(3) Investigations, as those of Cash and Ludwig, Radziejewski, Münk and others, have proven that fat absorption goes on perfectly when no emulsion of fats, but simply a clear solution is present in the intestine.¹⁶

Following the abandonment of the theory of absorption by emulsion of neutral fats, Münk has suggested that the fat is absorbed in the form of fatty acids, and has supported this by investigations which prove that absorption of fatty acids may take place in the intestine.

Altmann, following this work of Münk, and also that of Radziejewski proving that soap may be absorbed from the intestine, suggested that the absorption of fat occurs as fatty acids and as soap. That this latter theory coincides with the actual facts of the case the investigation of Moore and Rockwood has determined. These authors not only confirm these qualitative determinations of the absorption of fat as fatty acids and soap, but also place the theory of the absorption of all the fat in the above forms on the basis of a quantitative determination. They show—

(1) That the mixed fatty acids of the food fats, as mutton, beef, lard, are soluble in bile acids at the body temperature.

(2) That the solubility of these fatty acids from the mixed fats of food in the bile of the ox, dog and sheep is sufficient to account for the solution of all the fatty acids from the fat of normal food.

(3) That the result of the action of the mixed intestinal secretions of the bile and pancreas upon the fat of food is a splitting of the neutral fat to fatty acids and glycerine and a consequent formation of a solution of fatty acids in bile acids, *plus* soap from the combination of fatty acids with alkalies.

(4) That in the intestinal contents of some of the animals used in the investigation the fat radicle was represented only in the form of fatty acids in solution, or in soap; and that absorption of fat occurred perfectly in these cases. In others an emulsion was present together with fatty acids and soap.

From the summary of results on this subject the authors conclude that the fats of food are all absorbed from the intestine in the form of fatty acids in solution, and of soaps. In the part of the intestine where the reaction is acid the absorption is principally of fatty

acids; in the part where the reaction is alkaline to litmus, or soap.

The importance of this knowledge in connection with the treatment of conditions of absence of the pancreatic or biliary secretions from the intestine is evident. (See Editorial in the JOURNAL of April 7th.)

TRANSFORMATION OF FAT IN THE BLOOD.

Rohrig noted that, after a meal rich in fat, the blood contained an increased quantity of fat, while the lymph did not. This indicated a digestion of fat in the blood.

Cohnstein¹⁷ found that fat injected into the blood vanished without an appearance of fat in the lymph or the urine. Blood and chyle fat were mixed, the fat content of the mixture taken, and the mixture kept in a current of air for twenty-four hours. The fat content diminished one-half. No change occurred if the stream of air was cut off.

The author shows that the fat is not broken up with formation of CO₂, as the air stream from the mixture was not richer in CO₂; but is transformed to some non-gaseous products, as the solid residue remains the same.

Hanriot found that blood serum of a neutral or slightly alkaline reaction possessed the faculty of breaking up and saponifying neutral fats. The action was very vigorous in the case of monobutylin, less marked but present with several oils tried. The saponification was measured by estimation of the liberated butyric acid. The author concludes that this action is due to an enzyme in the blood, which he names *lipase*.¹⁸

The author found that this hydrolytic action of blood serum upon fat was similar in vigor to that of the pancreatic enzyme in neutral or alkaline media, but twice as strong in acid media. The lipase increased in activity with the alkalinity of the serum. As the same fact is true of the activity of the proteid-converting ferment of blood serum, it is clear that the administration of any substance tending to increase the alkalinity of the blood may greatly aid in the conversion of nutriment in the body.

INFLUENCE OF DIVISIONS OF FEEDING ON NITROGEN METABOLISM.

Gebhardt¹⁹ and Krummacker²⁰ have each made an independent investigation upon the influence of the division of the daily food-supply into several meals, upon proteid metabolism.

The results in both sets of investigations show that more nitrogen is retained in the body, that is assimilated, if a given quantity of food is ingested in divisions during the day, than if this quantity is taken all at one time.

Krummacker, in his investigation, gave the food in four meals daily, and in a single meal, in alternate periods. Gebhardt gave one, two, four and eight meals per day. Gebhardt considers that the nitrogen deficiency with the single meal is due to the increased disintegration of the proteids to amido-acids, indol, etc., under the influence of the pancreatic ferment and bacterial putrefaction, during their longer stay in the intestine. Krummacker shows that as the nitrogen content of the feces is constant with both kinds of

¹⁵ Journal of Physiology, vol. xxii, p. 58.

¹⁶ References given in Moore and Rockwood's article.

¹⁷ Cohnstein: Pfüger's Archiv., Bd. lxx, s. 473.

¹⁸ M. Hanriot: Compt. Rendu, 1896, cxxiii, p. 753; loc. cit., 1897, cxxiv, p. 777.

¹⁹ Pfüger's Archiv. f. Physiologie, Bd. lxx, s. 611.

²⁰ Zeitschr. f. Biologie, Bd. xxxv.

meal, the deficiency is not due to lessened digestion of proteids; that as the formation of amido-acids and indol, etc., by pancreatic and bacterial fermentation in the small intestine is practically *nil* in the normal period in which the food lies there (investigations of Neucki, MacFadyan and Sieber), the deficiency is not due to increased intestinal putrefaction, as Gebhardt considers; and concludes that the difference in assimilation is due to the greater capacity of the cells to transform the food when it arrives in smaller amounts at separate periods.²¹

(To be continued.)

Reports of Societies.

SUFFOLK DISTRICT MEDICAL SOCIETY. THE SECTION FOR OBSTETRICS AND DISEASES OF WOMEN.

C. H. HARE, M.D., SECRETARY.

REGULAR Meeting, Wednesday, December 22, 1897,
DR. F. W. JOHNSON in the chair.

PATHOLOGICAL SPECIMENS.

DR. BURT: I have a specimen that has been very interesting to me, and I thought the Society might like to see it and hear about it. It is from a young woman, twenty-three years old. I saw her first about the 25th of May. She had had a development in the lower bowels which she had noticed for a period of about three weeks, and previous to that time there had been nothing noticeable in her condition at all. I saw her the latter part of May on Wednesday, and found growths that needed removal. The following Monday she came in and I looked over the case again, and found her size had increased to twice what it was the previous Wednesday. The next morning operation was done; and I found pyosalpinx on the left and ovarian cyst on the right. The two were as difficult to get out as anything I have ever met, and adhesions were quite numerous; but every one present felt it was simply impossible to get those cysts out and it was supposed they would have to be left there and packed, especially the right one. That was so densely adherent that it had to be practically torn from all surrounding tissues. It was adherent a great deal to the bowels, and could not be separated. In that case I had to take a method which I have not been obliged to do before—cut off around the sac and turn the thing wrong-side out, and that left the sac, the layer, on the surface of the intestine, and that afterwards peeled off and left a fresh surface which was sewed with catgut and bleeding stopped. Finally, I was able to get the thing all out, so that there was not anything left. That case then did remarkably well. I don't think I have seen a case that could sleep the following afternoon and all night following an abdominal operation of that magnitude, and this one did. She was out inside of four weeks, everything natural and normal. It was not long, however, before she began to feel trouble. I examined again, and found a little development in Douglas's cul-de-sac, and above and behind the uterus, that could be felt through the abdominal wall. At first I did not want to interfere with it, but kept watch of it. It has gone on growing a little

more and more all the time, until within the last week we decided to have another operation, and she returned Monday and was operated on yesterday. This development was a sac that contained between two and three quarts of muco-pus, quite thick. Inside of that was another sac, all of these springing from the right broad ligament. Tissues had been drawn up and stretched so that it occupied that amount of space, and the sac within the sac was perhaps one-sixth part as big as the whole, and that contained the tissue you see there, which is evidently papillomatous; so that now we have a growth returning after an operation within six months—a growth which had not anything to do evidently with the others. This is a thing that has not been in any of my cases before. I consider it a very interesting case, and I thought you might be pleased to see it.

Inasmuch as there is to be a paper on the subject of fibroid, I thought I would bring this specimen as one that was operated on to-day. That is, one which contains all that could be removed through the abdominal walls of uterus and growth. It was all nodules in all directions, quite a number of them, and quite a number of small developments inside, some of them hard and some soft, a mixed growth. That is from a lady fifty-three years old. She had her menopause two years ago, and this has all grown as far as anybody knows within that time and been growing very rapidly recently. Quite lately she has been suffering from the pressure it caused; and there was one pretty large nodule directly in the bladder which caused a good deal of trouble. It was more or less movable, but not at all suitable for the operation by way of the vagina, so that this was done through the abdominal wall. I found that about one-half of the surface was adherent to intestines, omentum; and it was so densely so that it left a patch as big over as my two palms and hands, after being removed, which was hemorrhagic and had to be closed in. It was so tight to the intestines that it was a very difficult matter to separate it off—one of those cases of which you could not make the diagnosis before getting in as to the amount of adhesions, but on getting through it proves to be very dense. I should say I had to work from one-half to three-quarters of an hour on those adhesions alone, getting them off the bowel, separating from that growth and stitching up.

DR. JOHNSON: I have two fibroids I would like to pass round. The history of this case is as follows: Mrs. E., thirty-nine. Menstruated at eleven. Regular for a year or two. Next two years anemic; slight watery discharge, no blood. For past few years has menstruated every two weeks; slight flow. In October hemorrhage lasting six weeks and nearly killing the patient. Entered Charity Club Hospital with loud anemic murmurs, and was kept in bed until strong enough for operation. Hysterectomy was done December 18th. The patient is doing well. This fibroid is a small one. It was shelled out of the anterior wall of the uterus so that I could get room to dissect off my anterior flap; one end of it extended to the endometrium and that probably was the cause of the excessive flowing.

This other uterus I pass around shows a pedunculated fibroid which had begun to slough. We are often told that small fibroids are of very little danger, and when they become pedunculated as this is, are of almost no importance at all. It was not twisted, but

²¹ E. Voit: Zeitschr. f. Biologie, Bd. 3.

adherent to the broad ligament, of bluish-yellow color and was the cause of the symptoms.

DR. S. E. PALMER read

A REPORT OF FOUR CASES OF HYSTERECTOMY FOR FIBROIDS.¹

DR. RICHARDSON: I have been very much interested in this communication. The subject is one in which all surgeons who work in the abdominal cavity take a deep interest. The first point which is not as yet fully settled is as to the indications for hysterectomy in fibroids. Although the mortality is steadily diminishing, yet I find in my personal experience that no operation is so uncertain; the most discouraging cases do well while some of the most encouraging ones do badly. I recall one or two instances in which I could make out no flaw in the operation, no fault which could have been provided for beforehand and yet in which death followed very rapidly from a fulminating peritonitis. The source of infection probably was from the uterine canal. In one or two cases we have had a fatal result with no pathological lesion whatever. I recall one case which died at the end of about ten days and in which Dr. Whitney at the autopsy could find nothing whatever. The woman had a high temperature and a high pulse. There was no evidence of peritonitis; the cultures were sterile. I feel, therefore, that it is very hard to predict the probable outcome in a given case of hysterectomy for uterine fibroid.

It seems to me that the indications for hysterectomy are: first, a rapidly growing tumor; second, hemorrhage; third, pressure, with its sequelæ; and, finally, general discomfort, anxiety and mental impairment. Dr. Palmer did not speak especially of the diagnosis of fibroids. I should like to mention the difficulties in the way of diagnosis that I have met with — cases in which I have operated for fibroids and found something else, cases in which a similar mistake has been made by others, better diagnosticians than myself. Within the last three months we have operated on cases supposed to be fibroids, but which proved to be, one an extra-uterine pregnancy, another a chylous cyst of the mesentery, another an ovarian tumor with twisted pedicle. Of course, the diagnosis would have been settled in these cases by passing a uterine sound. We did not do this because it was clear that some operation was necessary. Though the diagnosis was wrong, the error made no difference.

In another case an extra-uterine pregnancy was found. In this case I had no doubt that the tumor was a fibroid, even after I had exposed it. I recall another case which Dr. Homans saw with me several years ago. After the tumor was exposed we all thought that it was a fibroid. It proved, however, to be the thickened sac of an abdominal pregnancy, with a fully developed dead fetus. I have seen a number of fibroids complicated with large abscesses of the tubes, and I have always found these cases to be grave.

It seems to me that the technique of the operation is well established. I have had no experience with morcellement. I feel decidedly opposed to all vaginal operations on tumors of the uterus beyond a certain size, and confine that operation entirely to a freely movable uterus not much above the normal size, in which, as in cancer, it is important to separate the cervix from the healthy tissues. The abdominal operation, it seems to me, is by far the better opera-

tion. We now make the dissection of the uterus as we would make the dissection of a tumor of the neck; tie the uterine artery first, after relieving the tumor by tying off the ovary, with the round and the broad ligaments. It seems to me worth while to do it in this way because we know that we shall cut neither ureter, intestine nor bladder. We do not clamp because we cannot use clamps and know exactly what we are doing. I have known of irreparable injuries caused by methods of uncertain dissection. Normal viscera are displaced, especially in the case of large tumors, until they may be out of all reasonable relations. For instance, I have cut a hole in the bladder when operating on what seemed to be the posterior surface of a uterine fibroid. The bladder had become adherent to the fibroid early in its growth; as the tumor increased in size, and became twisted, it had pulled the bladder around with it. In this particular case no harm resulted. With reference to the cutting of the ureters, the ureters vary greatly in their position with respect to these tumors; not only are they not always where they should be, but they may be excessively displaced, even thrust into the midst of the apparently safe operation field. We should therefore exercise the greatest care in our dissections; we should see what we are doing — we should take that route by which we can see the best.

In closing in the stump I have always left the cervix, a method which seems to me to make the operation easier. I have closed in the stump with peritoneum, as Dr. Palmer described, except that I use silk instead of catgut.

One or two symptoms spoken of in these cases are very interesting to me. It is not always possible to find some gross source of wound-infection, like the towel spoken of, to explain things. When we think how easy it is to contaminate a wound — how impossible to prevent contamination — we must admit that all wounds are necessarily contaminated more or less. Our operative success will be proportionate to the efficacy of our technical barriers against invasion of the wound and to the phagocytic powers of the blood behind these barriers. In view of this ever-present contamination, dilute though it may be, in view of feeble powers of resistance, it is not so surprising that occasionally, after the most satisfactory operations, we get these evidences of sepsis. I can now recall several cases of inexplicable sepsis that have occurred recently in my own practice; some of the cases like Dr. Burt's case, universally adherent multilocular cysts; some of them cases of fibroids. At the end of a week or two, without any cause that we could make out, the temperature would for a few days run up to 103° or 104° in the evening — a very peculiar temperature chart, and one that I could not explain, for it apparently had no effect, either immediate or remote, on the prognosis, though it gave me great anxiety. Moreover, there were no physical signs of local infection.

Hysterectomy, I think, the greatest operation in surgery, the most difficult, the most uncertain. It is an operation in which success is largely a matter of experience. Every operator sees his mortality diminishing as time goes on. His good results increase not only with additional experience in the operation itself, but with the betterment of his general technique. I have seen many men perform hysterectomy; it seems to me it is an operation that on the average is well per-

¹ See page 348 of the Journal.

formed in thirty minutes, but even better in forty-five or sixty. I do not think that it is an operation in which one ought to feel hurried. One can, perhaps, by clamping the broad ligaments, snap out a uterus in four or five minutes; these are just the cases in which one is likely to clamp or to cut the ureter. This is one of the great dangers of hysterectomy, and, like all dangers, it must be met with caution — not in unnecessary haste. I don't believe in taking three or four hours for a hysterectomy, but I do believe in taking from half an hour to an hour. In many cases I perform myomectomy, which is a very gratifying operation. I am convinced, from my own experience in myomectomy, that I have at times taken out a uterus when it was not necessary. I see no objection whatever to this operation; it has everything to commend it.

In future, hysterectomy for fibroids seems encouraging; yet I still feel conservative in advising it, for one cannot but see the occasional bad results of the operation, even if the ultimate results are good. I have seen, for instance, one or two cases of mania. I recall one case in which I removed the uterus of a rather weak-minded woman. The results were as perfect as could be. The woman dropped dead while she was being fitted to a supporter. I do not know that the death could justly be attributed to the operation; yet the case must be included in the fatal cases. I have seen, too, a number of cases in which the patients have complained of hot flashes after removal of the uterus. In some instances it seems that the result is worse than the disease; the patients suffer much more from the hot flashes than they did from the tumor. I like to feel in looking back on the cases that I was wholly justified in the operation. On the whole, hysterectomy is not performed often enough, and its dangers are possibly exaggerated. On the other hand, I think possibly at times, after a long series of uninterrupted recoveries, we may get to feel a little too radical. If one has a series of fifty or a hundred consecutive cases of recovery, he thinks there is no danger at all. Then comes the inevitable disaster, the three or four fatal cases.

DR. CONANT: I have been very much interested in this paper, very much interested in the report of the cases, because it seemed to me they come in the class of women that we are called upon to treat, not because they have plenty of money and are able to do what we would deem the wisest, but because they have to work for a living and we are brought face to face with what is the best thing to advise in cases of that sort. I don't know how it is in other men's experiences, but most of the cases of fibroids I see occur in poor women, many of them having to work for a living. I presume there are in the practice of some men wealthy patients. My own experience is that it is in the poorer patients who have to lead a life of invalidism or submit to radical operation. I think I am a little more radical than Dr. Richardson, because I advise the operation rather more freely than he apparently does. I believe that where there is a history of tumor of any considerable size which interferes in any way with the occupation in which the woman is employed, where there is any disturbance from flowing or history of some sharp attack of the peritoneum, I believe such an operation as has been described or one similar to the operation of myomectomy in which the tubes and ovaries are removed to be very desirable. I have had

no experience with tying the uterine arteries, therefore I cannot speak from experience; but in looking up the statistics I have not wished to have a personal experience.

I have had a few cases of vaginal hysterectomy, and I agree with Dr. Richardson, that the abdominal route, as far as I am concerned, is very much to be preferred, and also that the tendency in the case of small tumors where there are adhesions, or where the tubes and ovaries are affected, is to operate through the abdomen. This happened not very long ago where I was called in, the opinion having been given by a man very much my senior that it was unwise to operate, and after examining the woman there was felt to be surely one fibroid perhaps as large as the fist, another one which seemed to be as large as a lemon on the right side, and still another which was not absolutely made out and which was thought to be either another fibroid or an ovarian cyst. The woman said she must have something done; and although she had been advised not to have anything done, I told her I would operate if she so desired. This bears out the point Dr. Richardson made, that when you operate you are not sure of the diagnosis until you open the abdomen. There was only one fibroid tumor, about as large as the fist, with a very small pedicle very easily removed; and, as far as the fibroid was concerned, it was a very simple operation. Then came the difficult part of the operation. The tubes and ovaries on both sides were thoroughly inflamed and dropped down into the pelvis, both fastened by a band across from one side to the other, so that you got into the pelvis and dug your way out. There did not seem to be any question as to what ought to be done. It seemed unwise to go ahead and do complete hysterectomy, and therefore ventral suspension was done, and the patient did uninterruptedly well; no rise of temperature. Sewed up tight. It followed the usual result of a normal case.

One other case which I have had also taught me a lesson and I mention it to show the possibility of error under which one may labor. I was called to see this case in consultation with a good man, and the first thing on exposing the abdomen was a tumor seen about the middle line. On examination it felt very much like a fibroid. On each side there were two masses to be felt, which felt like pus-tubes. The woman was flowing, and I said I would prefer not to make a more thorough examination, but examine later. She was just at the end of a period of about ten days. She started twenty-four hours after that, and flowed persistently something like a week, and he told the family she probably had an extra-uterine pregnancy and he hoped that it would be absorbed, having read a recent book, in which the author advocates allowing absorption if possible. The temperature finally began to go up, and he asked me to see her again; and that was about seven (?) weeks after the first examination. The appearance of that tumor was very marked, pushed up nearly to the umbilicus, and felt more like a fibroid than before. I told him I excluded any question of extra-uterine pregnancy, and thought we were dealing with a fibroid acting queerly; and unless we had a large pus-tube pushing it up, I could not account for it. We took out the fibroid by myomectomy, which was nearly as large as a child's head; and then I saw two of the most enormous pus-tubes I have had anything to do with. On one side nearly a pint and a half of pus, and the other broke. Ventral suspension was

done, and that woman went through a more or less septic condition; but now, some three weeks after the operation, she is sitting up.

Those two cases, to my mind, were very instructive as to what had been going on a considerable length of time, and perhaps should have been treated earlier (because the fibroid had been made out a considerable time before I saw it, made out by several good men, and the operation had been advised against). The result was that there were two pretty serious cases to deal with; whereas had they been opened early and some operation done, either a complete hysterectomy or myomectomy, it probably would have been a comparatively simple operation. I do not look upon this operation in quite so serious a light for a simple fibroid tumor. Where it is complicated it becomes a serious matter. Nor do I think the size makes so much difference. One of the easiest operations I have done was done in thirty-five minutes, the tumor large as a child's head. I remember seeing Dr. Richardson do one similar to it, and in his case there was almost the same condition. The operation was not at all obscure; he showed the vessels beautifully before he tied them; showed the ureter. Those are sometimes spoken of as unfavorable tumors to operate on, because large.

In my experience the toughest case I have had was a small tumor in which a woman had been bleeding for weeks. For some reason or other, either because I was slow or because it presented some difficulties I have not been able to fathom, that operation took an hour and a half, yet the tumor was not much larger than a lemon, but you could not get the uterus up in order to get it out, and I felt all the time as though I was working with the tips of my fingers. The patient made a good recovery, but there was a good deal of hemorrhage, more than there ought to be; in the ordinary abdominal hysterectomy it can be done, and has been over and over again, without spilling a whole teaspoonful of blood. The present method of clamping and tying as you go makes it a bloodless operation. There is no question it can be done more quickly and safely than by the vaginal route.

DR. BURT: I have not much to say in regard to the subject, but am pleased with the paper, and especially with the remarks that Dr. Richardson has made. It seems to me that we ought to be very careful in the way of diagnosis and in judging of our case before we decide to do these hysterectomies. My experience is that it is a very serious operation; before going into it I am inclined to hesitate a little, and, unless the symptoms are very important, to wait or try other methods rather than surgery and give the patient a chance some other way if possible. The question of diagnosis I think is very important, and I do not find there is anybody able to make a diagnosis in these fibroid tumors satisfactorily enough so but what we mix them up with all sorts of conditions. Even sometimes after you get into the abdominal cavity, there is a great deal of difficulty in telling. The case I showed to-night illustrates the difficulty. I knew there was a pus-sac there, and yet it appeared (that case which had about two or three quarts of muco-pus) like a pregnant uterus after you got into the abdominal cavity. Inasmuch as it is so difficult to make out these cases before operation, and in fact at the time of operation, and is to my mind a very serious matter, I feel like hesitating a good deal, as Dr. Richardson has stated, before we go into these matters. It seems to me a good many cases have been

done that ought not to be; and for that reason I feel like hesitating before going ahead, to be pretty sure there is not anything else that can be done for the case but the hysterectomy.

DR. ENGLEMAN: I did not hear the first part of this paper, only the latter cases; but I do wish to congratulate Dr. Palmer on her success and on the fact that these cases were not subjected to operation until treatment had been tried. As Dr. Richardson and others have stated, the question of diagnosis is an important one; but it is impossible to decide upon operation unless very urgent indications exist, and when clear and distinct indications do not exist at the time, I believe that treatment should be tried. It is essential that the tumor be removed; it is essential that the patient be relieved and be made comfortable, put in a condition fit to attend to her duties; and I have seen those symptoms relieved so frequently that I take a far more conservative attitude and do not believe, as some do, that every growth, fibroid or myoma, is sufficient to indicate operative interference. The operation may be a simple one; but until we have opened the abdominal cavity we cannot say that, and we are always taking a chance. You know that among colored women we find many fibroids post-mortem, which have given rise to no symptoms — women who have been doing their work; we find them in death from acute disease from other causes; they have given rise to no symptoms which have seriously interfered with the woman's occupation, not incapacitated her or caused her extreme suffering. And again, they diminish in size; so that I feel the patient should be given a chance, treatment attempted, unless the operation is unquestionably indicated by serious symptoms at the time.

But I did not understand that hysterectomy was spoken of that is usually the supravaginal. I presume it was not complete hysterectomy in Dr. Palmer's cases or Dr. Richardson's. I should like to ask Dr. Richardson with regard to his experience as to the ligatures. I am in favor of the careful dissection, of the ligation of the vessels, and with the finest possible ligature. I have in former times used very heavy silk, and I have repeatedly found, after more or less time, the passing away of ligatures; and I will say that in the later 80's I have seen a good many of these cases, both on this side of the Atlantic and on the other, when it was more generally customary to use the very heavy ligatures. You all remember Tait's cord-like pedicle silk. But I have frequently seen the passing away through some part of the abdominal incision, through the cervical canal I think once or twice, in some cases through the bladder; and I should like to know from Dr. Richardson, who has seen so many cases, what his experience has been. I presume, of course, at present with few fine ligatures that is rarely the case. And I should also wish to hear his experience with regard to the total extirpation, which in some difficult cases certainly seems to give the better results and afford us that free drainage through the vaginal opening which we do not get by the upper incision.

DR. RICHARDSON: In reply to Dr. Engelmann I would say that we endeavor to put on as few ligatures as possible, and rather small silk. The uterine artery is tied by the same silk which we use in tying arteries in the breast operations. I have yet to be dissatisfied with silk. We use silk altogether, except in tying off a gangrenous appendix or in pus cases — we always

use silk, and I think that I am safe in saying that we practically never have any trouble with it. I used from 1888 to 1892 silver for most purposes of suture; in fact, for five or six years, I used it in all my hernia cases. I think that we never had any trouble with it, but gave it up, I forget why. With silk there is a sensation of security, a firmness, especially against the slipping of the knot, which we do not get with catgut. I have used the largest silk in sewing up omental hernia. It gave no trouble. I have great faith in silk, and I see no reason for using anything else.

DR. THEODORE C. ERB read a paper on

CÆSAREAN SECTION.²

DR. WASHBURN: I have been very much interested in listening to the account of the Cæsarean section, as it has been in line with several that I have done, where the labor had been going on some time, and efforts previously been made to deliver the child instrumentally. I think that there is no question as to the great additional safety of performing the operation without any previous interference. Where there has been no effort at delivery previously, where you make an operation of election, know the conditions and know you have got to face a contracted pelvis with its dangers, you can make the preparations and do the operation before the woman is exhausted or before the chances of sepsis are increased; but I think, as in the case Dr. Erb has reported, if the previous operations have been absolutely aseptic, the chances from a Cæsarean section are better than from any other operative interference. There is no question at the present day as to the inadvisability of doing a craniotomy or embryotomy on a living child. I think the men who would do that to-day are very few and open to the greatest censure. The statistics show a small mortality of the mothers; and, of course, the number of children saved is very large.

There are a few things in the technique of the operation which I think are worth speaking of, as being points that add to the ease of the operation and the success of it. It is always a valuable plan to wash out the uterus down through the vagina. I think it is always a desirable thing to remove the uterus from the abdominal cavity before making the incision in it, and packing sterile aseptic gauze or towels around the opening thoroughly so that no discharges can run down into the abdominal cavity while the uterus is being emptied. The placing of a rubber tube around the cervix is a precaution that I have always taken, but have never had occasion to use it, having one assistant always hold the vessels in the broad ligament with his hands. You have less danger of injury to the soft parts, less danger of disturbing the bladder, and you can control the hemorrhage absolutely. In three cases I have done, the incision through the median line has gone right through the placenta. The hemorrhage is not very great, a little rush of blood at first from the blood contained in the placenta. Another important thing, I think, is the leaving in of aseptic or antiseptic iodoform gauze in the cervix draining down into the vagina to insure a more perfect drainage of the uterine cavity and preventing a backing up against the stitches in the uterine wall. The stitches in the uterine wall should be of some material that will absorb if there is any question of a woman having any subsequent pregnancies. I think the leaving in of silk in the uterine

wall where there is a possibility of a succeeding pregnancy adds to the risk of her abortion and to the dangers of the pregnancy if it goes to term. The material should be either chromicized catgut, which I have always used, or the kangaroo tendon, which is quite as good. One thing that I have found desirable is the having of an assistant competent to resuscitate the baby. It is not always an easy matter. The child is not only somewhat asphyxiated, but thoroughly etherized also; and it sometimes takes a good deal of skill to resuscitate the child.

The operation I think is one that has not been sufficiently esteemed; it is one that when done with care will, I think, give the best results in the contracted pelvis where the labor by ordinary means is impossible.

DR. ENGLEMAN: I have been much interested in this paper and in the subject; and although Dr. Erb and Dr. Washburn have been successful in a class of cases which have hitherto not been attacked with the best results by this method, that is, the Cæsarean section during the progress of labor, after the attempt at forceps was vain, and whilst the gentlemen have been successful, I believe that such success has its dangers. I must confess I do not look upon those cases as cases for Cæsarean section. The results hitherto and in the hands of men who operate with a great deal of skill, such as Sänger, for instance, and Dr. Hirst, of Philadelphia, have not been the best—at least in such cases, and I will say in all their Cæsarean sections. Of course, many of those are cases already exhausted, under various conditions elective and otherwise; but I mean the general results, and especially the results after attempted delivery, have not been good. I think it is dangerous to judge from a few cases; and if Dr. Erb will permit me, I would like to refer especially to his case, which might serve as an example. Of course, we must eliminate at the present day all idea of craniotomy or embryotomy on the living child; but we have here a patient who has been confined without serious injury to herself a number of times; in all but one case the child was dead, but she was confined at full term of one living child. Now we know it is not a very much deformed pelvis without any measurements, and the doctor gives us the measurements. I should say, unless in the hands of an experienced surgeon, it was a case for induction of premature labor.

The advantages of symphyseotomy in such cases are that it can be attempted with much greater safety than Cæsarean section when delivery has been attempted either by forceps or version; and whilst statistics have been referred to, I think statistics are a variable guide, and at present they must still guide us in this. The statistics of symphyseotomy are much better than those of Cæsarean section. I am aware of not only the few cases mentioned from Vienna, but quite a number of successful cases of Cæsarean section without a death, and I would only mention Zweifel with one death. Now, he has fifty symphyseotomies without a death. In our own country I would mention Dr. Hirst, who is doing a great deal of this work. I heard from Dr. Hirst, a short time ago, that his Cæsarean sections were 18 per cent. or 20 per cent. mortality, whilst his symphyseotomies are much better; and yet his tendency is to Cæsarean section. It is the attractive operation, the operation that tells among the people. Symphyseotomy gives you no glory; but if it is a question of the results, that of symphyseotomy is still better,

² See page 346 of the Journal.

and I would say especially for the general practitioner, the man not familiar with abdominal work. You will find symphyseotomies reported here and there—successful ones—throughout the West by the country practitioner.

The first symphyseotomy in this country was done by a country doctor in Texas, and the example which is set in these discussions is not alone for the experienced surgeon, but for the practitioner at large, and a positive and rapid decision we must come to in those cases. Symphyseotomy can be with greater safety applied after labor has been attempted; and it is upon that very boundary-line where forceps may succeed if the child be a small one. Our measurements cannot guide us with that precision, and the country practitioner is not familiar with those methods. He knows his forceps have failed, version has failed, he cannot deliver, and the woman appears to be well built. He finds the head will not come down. Is he to resort to Cæsarean section? If he can do anything at all, it is his case for symphyseotomy; and if he does not feel competent to do that, he will still have to perforate. I eliminate embryotomy if it is a question of an abortion or of a surgeon; but it is still, I believe, to be kept in view by the practitioner removed from the centres unless he resort to a symphyseotomy, and I would, above all in a case such as we have mentioned here, urge that, as far as I can now see—and I think I have looked over the reports pretty thoroughly within the last six months. The results are still far better by symphyseotomy; and I look upon it as a dangerous tendency to see Cæsarean section invading this province, because it is an attractive operation which I believe many who are not fit to do it are likely to follow on account of the success of capable men.

The PRESIDENT: Was the child's head measured after delivery?

DR. ERB: I did not see the child after delivery. We tried to get the head to engage, but failed. There was a history of several dead children, and the family were anxious to get a living child; and we thought we would do a Cæsarean. It was one of those cases just on the line, about seven centimetres, just a little less than three inches. Some might do a symphyseotomy. I thought, all things considered, Cæsarean offered the best chance for both lives. One might do a symphyseotomy, lose the child and save the mother. If you did Cæsarean, you might save both. To be sure you might lose the mother; but we were comparatively certain of our antiseptics and felt reasonably sure to save both. We tried moderate traction and gave it up. It took some time to get the things ready to operate; in the meantime the child's heart increased to 176. If you tried to drag the child through after a symphyseotomy with a fetal heart at 180, the chances are you would get a dead child. No doubt you would have to add forceps to the symphyseotomy and child would have to be delivered with mechanism. All things considered—the mother's age, the child's condition and the condition of labor—Cæsarean offered the best chance for both. The fact that both were saved seems to justify the procedure.

DR. BOLAND: I have been very much impressed with what Dr. Englemann has said about the margin of error in pelvic measurements.

Some years ago I had a case in which at the first delivery, which occurred at eight months, I delivered

a healthy child that only lived three days, and died from the difficulties of delivery, which was terminated by the forceps to the best of my ability.

As the woman was young, strong and healthy, I attended her again in her second labor, with good hope of a better result. This time she went to term. I did my best, and I gave her time enough without waiting too long. We got another dead baby.

When she became pregnant the third time, I had one of the best men in the city take her pelvic measurements and consider the question of Cæsarean section. This was at five months. He found the measurements, as he believed, ample, and advised me to do my best as before. I did so and with the same fatal result, in spite of my best efforts. When I reported the result to the consultant, he regretted that I had made lateral incision of the *labia*. This seemed to me impertinent, as I am unwilling to believe that any child lost its life at my hands by rigidity of the soft parts at the outlet.

The point I want to make is simply this: if an expert fails in such a case, either the margin of error is too great or other conditions of the mother's parts not appreciable by pelvimetry make it too uncertain to be depended upon in an otherwise doubtful case.

DR. WASHBURN: In that regard I remember a conversation that took place among a number of men who had seen the same case. Each one had taken the pelvic measurements; all were good obstetricians, but their measures varied three-fourths of an inch between the two extremes.

DR. BURT: It seems very desirable to be able to report a successful case, and Dr. Erb has been fortunate in having such a one; but it seems to me there are the same conditions to consider in regard to this matter we have in all other cases of abdominal surgery, that a great deal of care is necessary, a great deal of judgment before you decide what to do and do anything, as important as that operation is. I am inclined to think that a great many cases have been performed simply for the glory of it without proper conservative judgment being used. On the other hand, I should say there have been cases in which the child or mother, or both, have been lost where operation ought to have been performed. I look back upon one or two early cases in which the child was lost that I feel pretty sure could have been saved by Cæsarean section, might have been by symphyseotomy. In those days that had not been considered so much as recently. It seems to me that it ought to be a pretty satisfactory operation if properly performed, if necessary. I should feel inclined not to advise it unless absolutely obliged to. Again, it is a fact that a good many of these cases are in the hands of men who have not done that kind of work. They are in country places and cannot get assistance. It would be hard in a good many instances to get two physicians; and consequently it seems to me that a good many of the men who would be called upon to do that sort of work could not do it, and there are other methods which would be preferable.

In regard to pelvic measurements, I think in most cases it happens about as Dr. Washburn has expressed it. I don't believe any two men can measure any pelvis alike, and I don't believe they ever did. I know a good many cases in which they have not been measured properly at all; and I have had some experience with cases in which it has been stated there

were contractions of the pelvis when there were no contractions, other cases considered as normal when there were contractions. So far I have not seen a contracted pelvis that demanded Cæsarean section.

I saw a case some time ago of a lady who had been delivered by a skilled obstetrician, and the case had been considered a difficult one. This lady was told she had a contracted pelvis, and should not attempt to have another child. She came to another physician who asked me to see the case with him, and another physician was present and made examination. We found she was pregnant about three months. She asked to have the uterus emptied. We refused to do it because there was no occasion for it. She said, "Will you have a consultation at seven months and do is then?" We replied, "We will have a consultation if you wish, but we will tell you now that we will not do that because the pelvis is perfectly normal." The child developed to full term, as I understood it, a full-sized child; and the child was born before the physician had time to get there.

That illustrates a large class. I have seen a number of women who said physicians had told them they could not have children. I have yet to find a case that could not after getting started; some of them do not get pregnant, but having got pregnant they have gone through.

About three months since a certain case came under my notice that had been diagnosed as pregnancy. There was no question about it; a lady of thirty-nine, had had thirteen children. The fourteenth was on the way, and it was not far from four months' pregnancy from all indications. The cervix was as high as you could reach, and the body flexed and so tight it was immovable through the vagina. There was a bunch as big as a child's head ought to be at full term above and to the left of uterus. I did not see how it was possible to make out anything but a cystic tumor. She was suffering intensely, and it was decided we must do something; and the decision in that case was abdominal section. The uterus was so firmly adherent down to the sac it was very difficult to raise it; and when we did it went off like a gun, quite an explosion. In that case I did not see any way out of it, as the uterus was so highly congested and the child dead, except to remove the contents and the uterus altogether; and I performed a total hysterectomy. The mother recovered, and is now in fine physical condition.

Recent Literature.

Diseases of Women. By GEORGE ERNEST HERMAN, M.B. Lond., F.R.C.P. Pp. 886, 252 illustrations. New York: William Wood & Co. 1898.

This is a very individual work. Its arrangement is somewhat peculiar, being rather symptomatic than classical.

The author devotes himself mainly to the practical side of the specialty. The tone is conservative, and there are some matters of treatment which will not be certain to meet the approbation of American gynecologists; but the book as a whole is evidently the work not only of a widely experienced practitioner but of a highly skilled teacher, and will undoubtedly prove of much value.

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THE ACCIDENT NEUROSES OF WAR.

As we face the present situation of affairs with regard to a possible war with Spain, it is of interest to consider what some of the outcomes of such a conflict would be from a purely medical point of view. If the crisis which seems imminent should result in actual hostilities, it is evident that we shall be brought face to face with conditions for which we have no adequate precedent. The warfare will be carried on chiefly at sea by means of engines of destruction of whose capacity we have little knowledge. It is certainly not our purpose to discuss the efficiency of the modern war-vessel in actual service, but rather to speculate, with what knowledge we have, in the first place, as to the destruction of human life and in the second place, as to the more or less permanent injuries which the participants are likely to carry away from a conflict.

The experience narrated to us in the late Chinese-Japanese War is still more or less vividly before our minds; and from this one engagement—the battle of Yalu—we may form some conception of the physical and mental effects of a naval battle. Should the navies of the United States and Spain actually clash, we cannot but suppose that the results would be infinitely more disastrous than in the now famous battle of the Yalu. In that engagement, apart from the actual loss of life which must necessarily always occur, there were certain subordinate injuries which excited the general interest of the medical world. Notable among these were the effects of concussion upon men confined in limited spaces—deafness, for example, and more or less serious injuries to the hearing apparatus of various sorts. In the unfortunate death and antecedent illness of the officer to whom we owe our best descriptions of the fight, we have exemplified a class of injuries which we must regard in great measure as dependent upon modern methods of naval warfare.

It is to this latter series of possible conditions to which we desire to draw particular attention, and to

the effects upon the nervous system in general. In these latter years when trauma has come to play so important a part in the etiology of certain nervous affections, we have often heard the query as to the effect of a great battle upon the nervous systems of the surviving combatants. So far as we are aware, no really satisfactory answer has been given to this query; for the reason, no doubt, that no observations have ever been made. Even at the battle of the Yalu no valuable statistical report as to the later effects of actual injury, or so-called nervous shock, have been reported.

We are all painfully conscious of the fact that a gas explosion or an accidental railway accident leads to consequences which seem to have no end. Neuroses of the most varied sort are forthwith born and grow to quite hopeless proportions as the years go by. Are we to suppose that men cooped up in extremely small spaces, stormed at from without by projectiles of enormous force, and subjected to terrific concussions of their own armament, should not suffer a like nervous derangement? The potential active life of men serving on torpedo boats or torpedo-boat destroyers is said to be a very short one—a maximum of three or four years. It is hard to conceive a position of greater nervous tension associated also with an element of extreme danger to life.

The question is really one of very vital interest in the present state of our endless discussions as to the real nature of these now so common nerve disorders; and yet whatever the outcome, as regards the nervous systems of the combatants, we should do well to be cautious in drawing conclusions. In the first place it is clearly evident that the element of surprise, of suddenness, of unexpectedness, is almost entirely lacking in the case of the sailor, whose whole training has in a measure fitted him for the ordeal of an actual engagement. He enters the fight consciously and with every possible preparation for all the horrors which may be in store for him. He is to a certain extent used to the reverberation of heavy artillery; and, more important still, he has deliberately chosen his lot. To the victim of the railway disaster, on the other hand, there is no possibility of preparation; he is plunged from a state of peaceful security into a chaos of emotions which he cannot at once understand and whose possible outcome is quite beyond his knowledge. This difference must be of the most extreme importance in its effects upon the nervous system, but exactly how important only a careful statistic, not yet forthcoming, can tell.

Another element in our supposed problem is one in which the two classes of cases may stand on a more common footing. We are forever hearing that the prospect for damages is the vital stimulus which brings on the nervous disorders of the railway victim. Under this theory, we must hold that we have become so innately mercenary that the thought of a pecuniary remuneration takes precedence of all others, at the very moment of the accident. It is at least conceivable—and we say it without the slightest disparagement to the members of the navy—that a like thought may

have a certain weight in determining the outcome of accidents in war. We learn that the pension list is growing larger rather than smaller; and may it not be that this subtle influence may come in as never before to determine, in a measure at least, the outcome of traumatic nervous affections originating in time of battle? It should be remembered, however, in the case of the marine, that there is the strongest stimulus so long as a war lasts, to a speedy return to health, in order that his gallantry may be rewarded by a promotion to a higher grade of the service.

In the light of the recent disaster to the *Maine*, and from the knowledge we are every day gaining of the enormously destructive effects of the torpedo and submarine mine, it is evident that modern naval warfare is assuming more and more the character of the unexpected. We may, therefore, expect to see in this regard, a continually closer analogy between the accidents of war and those of peace, a consideration which will make future war statistics of greater value in the study of the neuro-psychoses.

From all this it must appear, that while certain analogies are apparent between the traumata of private life and the traumata of war, nevertheless, deductions based on such analogies should be carefully regulated by a study of the essential differences, so far as they exist, between the two cases. As we too well know, the whole matter of the traumatic affections of the nervous system is as subtle as any problem with which we have to deal in the whole realm of medicine. Suggestions, however, are always legitimate, and these remarks are only offered as such. In the unfortunate event of war, it is surely to be hoped that this compensation may at least be gained, that we may learn something more definite as to the immediate and remote effects of the nerve strain induced by a modern naval conflict.

LITTLE HAMMERS FOR SUTURE OF THE BILE DUCTS.

THE suture of the normal common bile duct has been generally regarded by surgeons as inadvisable because of the delicacy and small calibre of the duct and the depth of the wound in which the operation must be performed. It has been regarded as almost impossible to prevent leakage, and to avoid danger of occluding the duct by too extensive infolding of its walls. Suture has therefore been attempted only upon ducts which had been dilated by accumulation of bile behind a stone and thickened by recurrent attacks of inflammation. The dangers of postponing operation beyond a reasonable time are well known, the retarded blood coagulation and consequent danger from hemorrhage in cases of long-continued jaundice are evident, the hypertrophy of the liver, and the cholemic or infectious toxemia, which result, are conditions which may greatly retard recovery from operation, or render the operation immediately fatal.

Halsted¹ has made a special study of the suture of

¹ Philadelphia Medical Journal, April 2, 1898.

BOSTON AND NEW ENGLAND.

UNLICENSED MEDICAL PRACTITIONERS.—The State Board of Registration in Medicine is enforcing the law against the practice of unlicensed practitioners. Last week Hermann of South Boston was fined one hundred dollars by Judge Fallon for practising without a license. He had been convicted before. On Thursday were three cases before Judge Adams, those of Charles S. Dennis, Dr. Ethel Hall and Dr. MacIntyre, all of Boston.

HOUSE OF THE GOOD SAMARITAN.—The tenth annual report of the House of the Good Samaritan, for the year 1897, shows that during the year 1897 patients were treated at that institution. In the year a comparatively small number of patients were admitted, on account of the successive epidemics of scarlet fever, mumps and diphtheria in children's ward. Examinations by the board of health showed that the house was in perfect sanitary condition, and that these diseases were undoubtedly introduced from outside. The adult wards were not visited by these diseases, and the usual number of patients was admitted. The financial condition of the institution has remained excellent, and, in the words of the secretary, "a gracious bounty has steadily flowed into our treasury." The treasurer's report shows additions to the permanent fund: a bequest of \$10,000 from Mrs. Francis W. Palfrey, one of \$5,000 from Mrs. Thayer, and a third of \$2,000 from the secretary, Anne S. Robbins.

NEW YORK.

RESIGNATION OF DR. JAMES W. McLANE.—At a meeting of the Board of Trustees of Columbia University held April 4th, the resignation of Dr. James W. McLane as Professor of Obstetrics was tendered and accepted, and a minute of the Faculty of Medicine expressive of its grateful appreciation of Dr. McLane's services to the school and regret at his determination to relinquish his professorship was recorded. Dr. McLane has occupied the Chair of Obstetrics in the College of Physicians and Surgeons ever since Dr. T. Gaillard Thomas resigned the position, and for a number of years has been President of the Faculty. It will be remembered that it was through his offices that the splendid benefactions to the school by the late William H. Vanderbilt and his children were obtained.

MEDICAL APPOINTMENTS AT COLUMBIA.—At the same meeting of the Trustees, Dr. Edwin B. Cragin was appointed Lecturer on Obstetrics and Director of the Sloane Maternity Hospital, and William C. Andrews, Assistant Professor in Physics; while Charles E. Pellow, who has for a number of years been associated with Professor C. F. Chandler, was made a member of the Faculty as Adjunct Professor of Chemistry.

TRAINED NURSES FOR THE HOSPITAL SHIP.—The Graduate Nurses' Protective Association of the State

of New York, which is now a regularly incorporated body, has tendered the services of twenty of its trained nurses for duty on board the steamer *Oreole*, recently of the Cromwell line, which the government is fitting up as a hospital ship, and the Medical Department of the Navy, through General W. K. Van Reypen, has signified its acceptance of the offer. The young women, when on duty, will wear a navy-blue India-silk waist and skirt, with a white apron.

DR. BILLINGS AND THE NEW YORK HOSPITAL LIBRARY.—It is stated that Dr. John S. Billings, Superintendent of the New York Free Library, Astor, Lenox and Tilden Foundations, was approached by the authorities of the New York Hospital as to the desirability of incorporating its library with the collection of that institution, and that Dr. Billings unhesitatingly recommended that it should be donated to the New York Academy of Medicine, which he thought was the most appropriate body to have this library in its possession. Public acknowledgment of the services of Dr. Billings in obtaining the library for the Academy was made at the last meeting of the Academy, on April 7th, by Dr. Wm. M. Polk, in moving a formal vote of thanks to the Government of the New York Hospital Society for their munificent gift. In his remarks Dr. Polk stated that the Government, in addition to the gift of their invaluable library, had generously appropriated a sum sufficient to defray the expenses of moving the books and setting them up in the Academy's building. The old Thorne mansion, on 16th Street, which has been utilized for the accommodation of its library ever since the New York Hospital removed from its old site at Broadway and Pearl Street, is to be torn down in order to make room for another extension of the hospital building from 15th Street.

EXPLOSION IN A DRUG STORE.—An explosion of extraordinary character and great violence occurred on April 6th at a drug store on Greenwich Street, from the compounding of a prescription which is said not to have been ordered by a physician and to have been composed of chlorate of potassium and salicylate of sodium. As a result of mixing the ingredients in a mortar the shop was badly wrecked—the damage being estimated at \$1,500—and the clerk who was doing the mixing was seriously injured and is now under treatment at St. Vincent's Hospital.

DINAH SUTTON.—Dinah Sutton, colored, who is stated to have been the last survivor of the New Jersey slaves, died at the home of her daughter in Paterson, N. J., on April 3d. She was born in Monmouth County in 1792, and on the 18th of December last celebrated the 105th anniversary of her birth. She is currently reported to have enjoyed the extraordinary distinction of having been "courted by General Washington's coachman." This suit was apparently unsuccessful, however, as she married another admirer, by whom she became the mother of thirteen children.

THE LOW MORTALITY CONTINUES.—The mortality of the city continues very low for the season of the

A HOSPITAL SHIP.—The *Oreole*, a large and handsome vessel sailing between New York and a Gulf port, has been selected by Surgeon-General Van Rypen, of the navy, for use as an ambulance ship, and has been taken in charge by the government and sent to Newport News, Va., to be fitted there for hospital purposes.

DEATH AT THE AGE OF ONE HUNDRED AND SIX.—Mrs. Rebecca Van Zandt died in Seneca Falls, N. Y., on April 10th, at the age of one hundred and six years. Records in the possession of the family show that she was born in Albany in May, 1793. She retained her faculties in a remarkable degree and last summer visited Albany alone.

CONTAMINATION OF RIVERS TO BE INVESTIGATED.—A bill has been introduced into the United States Senate by Mr. Cockrell providing for an appropriation of \$3,000 for an investigation to be made by the Marine-Hospital Service of the source of contamination of rivers and other natural sources of water-supply where the sanitary condition of the people of more than one State or Territory is affected, or threatened to be affected, by such pollution.

PLAGUE IN THE EAST.—Cases of plague have been reported at Jeddah, the port of Mecca on the Red Sea. The Turkish Government has officially notified the Egyptian authorities that three deaths from plague have occurred at Jeddah. In Egypt the Quarantine Council decided on March 26th to apply the plague regulations against arrivals from Jeddah. By the latest reports eleven cases of plague have occurred at Jeddah, of which seven proved fatal.

THE DIVINE HEALER BEYOND KANSAS LAW.—The Kansas State Board of Health recently applied to the attorney-general for a decision concerning the enforcing of the medical-practice law in that State. His decision was that magnetic healers, hypnotists, and all the other quacks except divine healers can be prosecuted, but that since the divine healers claim their power to come from Jehovah the rights and privileges of Jehovah can in no way be regulated or restricted by the statutes of Kansas, and therefore the medical-practice law cannot be enforced against them. A Daniel come to judgment!

THREE CASES OF TETANUS TREATED BY ANTITOXIC SERUM.—Suter¹ reports a mild case of tetanus in which the injections were begun on the twenty-seventh day after the injury, and the sixteenth after the appearance of symptoms. Gradual recovery took place. Two other severe cases, in which the injections were begun three and four weeks after the probable dates of infection, and eighteen hours after the appearance of the symptoms, ended fatally. Although from these cases there is no evidence that the serum treatment had any effect on the course of the disease, the treatment was begun so long after the infection as to render a fair test of the antitoxin impossible. In addition to the serum treatment local measures directed

against the further absorption of toxins should be taken, and general narcotics should be administered in order, as far as possible, to protect the organism from the action of the poison already absorbed.

AN APPETITE FOR PINS.—Mr. Thomas Annandale, in a recent number of the *Scottish Medical and Surgical Journal*, reports the case of a boy, aged twelve, an inmate of an industrial institution, who was admitted into the Edinburgh Royal Infirmary under the author, with the history that he had confessed to swallowing some pins, but as he had no symptoms save a slight pain in the epigastrium, his story was doubted. The day after his admission a dose of castor oil was given, but produced no result. Two days later a second dose was given, and after the bowels had acted, there were found embedded in the stools several pins, some straight, some bent. During the next two weeks, doses of oil were given every second or third day, and with each stool foreign bodies, consisting of pins, nails, etc., were passed. After this the procession of foreign bodies ceased, and the boy was sent back to the institution quite well. The following is the list of the bodies discharged *per rectum*: 52 pins, 1 needle, 5 hobnails, 3 springs, 1 collar stud, 4 carpenter's nails, 3 brass boot-nails, 1 staple. The boy showed no signs of any special mental condition, and the only explanation that he could give of his swallowing "feats" was that he had been playing magic to amuse his companions.

A CONJURER'S STORY.—The following story is quoted by the *London Chronicle* from the *Ceylon Independent*: "It was at a quiet party, and Carl Hertz, the famous conjurer, had been delighting the company—especially the ladies—with many of his finest tricks. One of the parlor-maids had been passing in and out with cups, cakes, glasses, and so on. She was much interested and when the hostess gave a sign that nothing more was needed the girl still lingered on to see the completion of the trick just begun. 'Will some one oblige me with a heavy shawl or cloak?' he said. 'Now,' selecting a big cashmere shawl, 'you observe the thickness of the shawl?' They all did, breathlessly, including the maid. 'Now, will one of you be good enough to write a number of three figures on a piece of paper, being careful not to let me see what is written?' With trembling fingers one of the girls did so, while the maid at the door leaned forward and began to breathe hard. 'Now, place the written paper with the figures on the upper side under the shawl as I hold it.' It was done, the thickness of the shawl being between Carl Hertz and the paper as he looked down toward it. There was breathless silence. Then he said, 'Surely the number is 761.' It was. He had apparently seen right through the thick shawl. Every one was dumfounded. Then upon the silence broke the shriek of the maid at the door. With one final gaze at the shawl and one at the handsome conjurer, she hid her rosy face in her hands, yelling at the top of her voice, 'What's the good of me clothes?' and fled."

¹ Korrespondenzblatt für Schweizer Ärzte, No 17, 1897.

BOSTON AND NEW ENGLAND.

UNLICENSED MEDICAL PRACTITIONERS.—The Massachusetts Board of Registration in Medicine is active in enforcing the law against the practice of medicine by unlicensed practitioners. Last week Charles Ziemann of South Boston was fined one hundred dollars by Judge Fallon for practising without a certificate. He had been convicted before. On Thursday there were three cases before Judge Adams, those of Dr. Charles S. Dennis, Dr. Ethel Hall and Dr. Catherine MacIntyre, all of Boston.

THE HOUSE OF THE GOOD SAMARITAN.—The thirty-seventh annual report of the House of the Good Samaritan, for the year 1897, shows that during the year 203 patients were treated at that institution. During the year a comparatively small number of children were admitted, on account of the successive appearance of scarlet fever, mumps and diphtheria in the children's ward. Examinations by the board of health showed that the house was in perfect sanitary condition, and that these diseases were undoubtedly brought in from outside. The adult wards were not invaded by these diseases, and the usual number of adults was admitted. The financial condition of the institution has remained excellent, and, in the words of the secretary, "a gracious bounty has steadily flowed into our treasury." The treasurer's report shows three additions to the permanent fund: a bequest of \$2,000 from Mrs. Francis W. Palfrey, one of \$5,000 from Mrs. Thayer, and a third of \$2,000 from the Secretary, Anne S. Robbins.

NEW YORK.

RESIGNATION OF DR. JAMES W. McLANE.—At a meeting of the Board of Trustees of Columbia University held April 4th, the resignation of Dr. James W. McLane as Professor of Obstetrics was tendered and accepted, and a minute of the Faculty of Medicine expressive of its grateful appreciation of Dr. McLane's services to the school and regret at his determination to relinquish his professorship was recorded. Dr. McLane has occupied the Chair of Obstetrics in the College of Physicians and Surgeons ever since Dr. T. Gaillard Thomas resigned the position, and for a number of years has been President of the Faculty. It will be remembered that it was through his offices that the splendid benefactions to the school by the late William H. Vanderbilt and his children were obtained.

MEDICAL APPOINTMENTS AT COLUMBIA.—At the same meeting of the Trustees, Dr. Edwin B. Cragin was appointed Lecturer on Obstetrics and Director of the Sloane Maternity Hospital, and William C. Andrews, Assistant Professor in Physics; while Charles E. Pellew, who has for a number of years been associated with Professor C. F. Chandler, was made a member of the Faculty as Adjunct Professor of Chemistry.

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of New York, which is now a regularly incorporated body, has tendered the services of twenty of its trained nurses for duty on board the steamer *Oreole*, recently of the Cromwell line, which the government is fitting up as a hospital ship, and the Medical Department of the Navy, through General W. K. Van Reypen, has signified its acceptance of the offer. The young women, when on duty, will wear a navy-blue India-silk waist and skirt, with a white apron.

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THE LOW MORTALITY CONTINUES.—The mortality of the city continues very low for the season of the

year, there being only a very slight increase in the number of deaths in March over those in February. For four weeks in March the annual death-rate per thousand of the estimated population averaged 18.79 against 18.46 for four weeks in February. Exclusion of the Bronx, in which the large number of institutions raise the death-rate abnormally, the Borough of Brooklyn continues to have the largest mortality and that of Richmond (Staten Island) the smallest. In the week ending March 27th the death-rate in the respective boroughs was as follows: Manhattan, 18.94; The Bronx, 30.45; Brooklyn, 20.01; Queens, 16.71; Richmond, 12.86. Measles is still the most prevalent of the contagious diseases, and in four weeks in March there were reported 2,513 cases, with 100 deaths, against 2,167, with 76 deaths, in four weeks in February. None of the other contagious diseases is nearly so prevalent as measles, and none of them shows any special increase. In the week ending March 12th there was reported one case of small-pox, the third since the beginning of January, but there has been no death from the disease thus far in the year. As customary in the months of winter and early spring, pneumonia is the disease that causes by far the largest number of deaths. In four weeks of March the mortality from it averaged 200 a week, while that from pulmonary tuberculosis in the same period averaged 155 a week.

Miscellaneu.

MULTIPLE NEURO-FIBROMATA OF THE CERVICAL SYMPATHETIC.

"ALTHOUGH reports of cases of neuro-fibromata of the spinal nervous system are common in medical literature, of the sympathetic system but few cases have been recorded, and those are in post-mortem reports," writes Abbe in the current number of the *Annals of Surgery*.

Prudden¹ collected records of 40 cases of multiple neuromata, some of which at autopsy showed involvement of the various portions of the sympathetic.

Virchow cites a case of Schonlein, near Würzburg, of multiple neuromata, in a twenty-year old girl, where there were neuromata in the spinal nerve-roots, and also the upper sympathetic ganglion was enlarged into a tumor two by three inches in size, in connection with thickened and knotty nerves.

A case was presented by Dr. Satterthwaite before the New York Pathological Society, in June, 1880,² of multiple neuromata involving cortical, spinal and sympathetic systems. Here there were very extensive tumors of the sacral, lumbar, cardiac and esophageal plexuses, and the cervical sympathetic. This is about the only case in literature of a true neuroma of the sympathetic.

A case was recorded by Reynold³ of multiple neuromata of very wide extent, and on autopsy found to involve the sympathetic trunks and branches.

The case reported by Abbe of operation for neuro-

fibromata of the cervical sympathetic is of great interest and undoubtedly unique.

The patient, a girl nine years of age, presented a moderately large tumor of the lower third of the right side of the neck, which was at first thought to be a lymphatic growth; but later when it was found that it was beneath the sterno-mastoid muscle and carotid sheath, it was considered most probably an obscure tumor of branchial origin. The tumor had been noticed only two months and had given no pain. It was egg-shaped, and extended upward from the right clavicle at its sternal end to the level of the hyoid bone.

At operation the sterno-mastoid was drawn outward and the jugular and carotid artery inward. The tumor was easily isolated, was found to be as hard as cartilage and embedded in the cellular tissues behind the great vessels. Branches of various sizes extended from it upward into the neck, and others downward under the clavicle, in a manner resembling the roots of a tree. A branch as large as a lead-pencil led down behind the sternum to a growth of similar type as large as an English walnut, and the upper branches led to a corresponding bulbous expansion beneath the base of the skull. Anatomically the network of branches leading from these tumors followed the distribution of the cervical sympathetic nerves.

The only unilateral symptoms following the operation, from which the patient made a good recovery, were a persistent narrowing of the right pupil, and suffusion of the conjunctiva. The contraction of the pupil remained five months after the operation.

The pathological report by Dr. Ewing of the Department of Pathology, of the College of Physicians and Surgeons, showed the growth to be a fibro-sarcoma of the nerve trunks.

The absence of pain in the tumor, and of other unilateral symptoms, such as flushing of the face, furring of the tongue, etc., following the operation, are points of great interest in connection with this remarkable case.

THE DIMINISHED RUSH INTO THE MEDICAL PROFESSION.

Is it safe to assume that at length the somewhat wild rush by young men into the medical profession is to be moderated? We ourselves do not mean to be rash in making this assumption. Meantime we take the facts for what they are worth, as recorded in the "Medical Students' Register" just issued. In the year 1897 the medical students registered were, in England, 828; in Scotland, 504; and in Ireland, 210. There was a decrease, as compared with 1896, of 199. The numbers in 1896 again were less than those of 1895 by 97. We must go back twenty-one years, to 1876, for so low a registration number as that recorded last year — namely, 1,479. The numbers have been several times over 2,000 — as in 1879, 1880, 1881, 1889 and in 1891, when they reached the appalling number of 2,405. Since 1865, the commencement of students' registration, 50.15 per cent. of the total number of registrations have been in England, 30.5 in Scotland and 19.5 in Ireland. The diminution last year was proportionately greater in Ireland than in Scotland or in England. We cannot affect to regret the signs of arrest in this rush into the profession. Medicine is not improved by crowds competing for a livelihood. — *Lancet*.

¹ American Journal of the Medical Sciences, vol. lxxx, p. 134.

² New York Medical Record, 1880, vol. xvii, p. 239.

³ Manchester Chronicle, 1896-97, p. 185.

METEOROLOGICAL RECORD

For the week ending April 2d, in Boston, according to observations furnished by Sergeant J. W. Smith, of the United States Signal Corps:—

Date.	Baro- meter	Thermom- eter.		Relative humidity.		Direction of wind.		Velocity of wind.		We'th'r. •		Rainfall in inches.		
	Daily mean.	Daily mean.	Maximum.	Minimum.	8.00 A. M.	8.00 P. M.	Daily mean.	8.00 A. M.	8.00 P. M.	8.00 A. M.	8.00 P. M.			
S...27	30.61	40	44	36	96	88	92	N.E.	E.	6	8	F.	C.	
M...28	30.54	39	45	33	81	60	72	N.E.	S.E.	4	9	F.	C.	
T...29	30.34	48	53	42	77	86	82	S.	S.W.	5	6	O.	F.	.03
W...30	30.12	45	48	42	92	96	94	W.	E.	6	4	R.	O.	.30
T...31	29.90	38	43	33	100	59	80	N.	N.W.	24	17	N.	O.	.41
F....1	29.98	46	40	33	41	49	45	N.W.	N.W.	22	12	C.	C.	
S....2	29.92	37	46	28	40	100	70	W.	N.W.	8	6	C.	N.	.09
Mean	30.20		45	35			76							.83

* O., cloudy; C., clear; F., fair; G., fog; H., hazy; S., smoky; R., rain; T., threat-
ening; N., snow. † Indicates trace of rainfall. — Mean for week.

RECORD OF MORTALITY

FOR THE WEEK ENDING SATURDAY, APRIL 2, 1898.

Cities.	Estimated popu- lation.	Reported deaths in each.	Deaths under five years.	Percentage of deaths from				
				Infectious diseases.	Acute lung diseases.	Diarrheal diseases.	Diphtheria and croup.	Scarlet fever.
New York	3,438,899	1276	450	12.72	20.16	1.20	4.88	2.40
Chicago	1,819,226	—	—	—	—	—	—	—
Philadelphia	1,214,256	448	140	14.96	14.30	1.76	5.72	.66
Brooklyn	1,160,000	—	—	—	—	—	—	—
St. Louis	870,000	—	—	—	—	—	—	—
Baltimore	560,000	219	70	8.55	18.90	1.40	3.60	.90
Boston	517,732	214	65	7.06	25.85	—	2.82	—
Cincinnati	405,000	—	—	—	—	—	—	—
Cleveland	380,000	101	38	8.00	13.00	1.00	2.00	—
Pittsburg	285,000	—	—	—	—	—	—	—
Washington	277,000	93	20	14.04	3.24	—	1.08	—
Milwaukee	275,000	—	—	—	—	—	—	—
Worcester	106,060	43	21	16.31	11.65	4.66	—	2.33
Nashville	87,764	25	4	8.00	20.00	4.00	—	—
Fall River	96,919	33	20	6.06	9.09	6.06	—	—
Lowell	87,193	81	9	3.23	19.38	—	—	—
Cambridge	86,812	27	3	11.10	33.33	3.70	3.70	—
Lynn	65,220	16	3	12.50	6.25	12.50	12.50	—
Charleston	65,165	—	—	—	—	—	—	—
New Bedford	62,416	18	5	5.88	11.76	5.88	—	—
Lawrence	55,510	17	12	—	17.64	—	—	—
Springfield	54,790	18	0	—	10.00	—	—	—
Holyoke	42,364	8	5	—	12.50	—	—	—
Portland	40,000	—	—	—	—	—	—	—
Salem	36,062	18	4	5.55	5.55	—	—	—
Brookton	35,853	8	2	—	—	—	—	—
Malden	32,894	6	1	16.66	16.66	—	—	—
Chelsea	32,716	7	1	14.28	—	14.28	—	—
Haverhill	31,406	6	2	16.66	—	—	—	—
Gloucester	29,775	—	—	—	—	—	—	—
Newton	28,990	—	—	—	—	—	—	—
Fitchburg	28,392	10	2	10.00	10.00	—	—	—
Taunton	27,812	10	1	—	11.11	—	—	—
Quincy	22,562	9	2	—	—	—	—	—
Pittsfield	21,891	—	—	—	—	—	—	—
Waltham	21,812	6	3	—	33.33	—	—	—
Everett	21,575	2	0	—	—	—	—	—
Northampton	17,448	—	—	—	—	—	—	—
Newburyport	14,794	6	0	—	16.66	—	—	—
Amesbury	10,920	—	—	—	—	—	—	—

Deaths reported 2,747; under five years of age 906; principal infectious diseases (small-pox, measles, diphtheria and croup, cerebro-spinal meningitis, diarrheal diseases, whooping-cough, erysipelas and fevers) 307, acute lung diseases 497, consumption 331, diphtheria and croup 109, measles 42, diarrheal diseases 37, scarlet fever 36, typhoid fever 31, whooping-cough 23, cerebro-spinal meningitis 22, erysipelas 7.

From measles New York 21, Philadelphia 12, Boston 2, Baltimore and Cleveland 1 each. From whooping-cough New York 13, Philadelphia 5, Providence 2, Boston Cincinnati and Wash-
ington 1 each. From cerebro-spinal meningitis New York 8, Boston 4, Worcester 3, Baltimore 2, Washington, Cambridge, Lynn, Holyoke and Malden 1 each. From erysipelas New York, Philadelphia and Boston 2 each, Worcester 1.

In the thirty-three greater towns of England and Wales, with

an estimated population of 11,218,378, for the week ending March 26th, the death-rate was 20.3. Deaths reported 4,342; acute diseases of the respiratory organs (London) 402, measles 242, whooping-cough 123, diphtheria 82, scarlet fever 42, diarrhoea 30, fever 29, small-pox (Leeds and Sunderland one each) 2.

The death-rates ranged from 14.5 in Blackburn to 31.2 in Swansea; Birmingham, 19.2, Bolton 19.2, Bradford 25.4, Derby 12.9, Gateshead 19.1, Hull 20.6, Leeds 18.3, Leicester 17.2, Liver-
pool 23.0, London 20.0, Manchester 18.9, Newcastle-on-Tyne 19.9, Sheffield 19.9, Sunderland 22.5, West Ham 18.2, Wolver-
hampton 16.6.

OFFICIAL LIST OF CHANGES IN THE STATIONS AND DUTIES OF OFFICERS SERVING IN THE MEDICAL DEPARTMENT, U. S. ARMY, FROM APRIL 2, 1898, TO APRIL 8, 1898.

So much of the order as directs CAPTAIN PAUL SHILLOCK, assistant surgeon, to proceed to Key West, Fla., and report to the commanding officer, 25th Infantry, is amended so as to direct him to proceed to Chickamauga, National Park, and report to the commanding officer of that regiment for duty with the first detachment thereof that may proceed to take station at Fort Jefferson, Fla.

The order assigning FIRST-LIEUT. BAILEY K. ASHFORD, assistant surgeon, to station at Fort Sam Houston, Tex., is revoked, and he is ordered to Fort St. Philip, La., for duty at that post.

CAPTAIN JOSEPH T. CLARKE, assistant surgeon, is relieved from duty at Columbus Barracks, O., and ordered to Madison Barracks, N. Y., for duty, relieving CAPTAIN PAUL SHILLOCK, assistant surgeon.

CAPTAIN SHILLOCK, upon being so relieved, will proceed to Key West, Fla., and report to the commanding officer, 25th In-
fantry, for duty with that regiment.

FIRST-LIEUT. GEORGE RAUCHFUSS, assistant surgeon, resigned April 2, 1898.

CAPTAIN EDWARD EVERTS, assistant surgeon, upon the abandonment of Whipple Barracks, Ariz. Ty., is ordered to Fort Apache, Ariz.

FIRST-LIEUT. ALEXANDER S. PORTER, assistant surgeon, is relieved from duty at Whipple Barracks, Ariz., and upon ex-
piration of his present leave of absence is ordered to San Diego Barracks, Cal., for duty.

The order assigning FIRST-LIEUT. GEORGE RAUCHFUSS, as-
sistant surgeon, to Fort Apache, Ariz. Ty., is revoked.

Leave of absence for four months, on surgeon's certificate of disability, to date from his arrival at the Army and Navy Gen-
eral Hospital, Hot Springs, Ark., is granted MAJOR HENRY MCLEDERBY, surgeon.

OFFICIAL LIST OF CHANGES OF STATIONS AND DUTIES OF COMMISSIONED OFFICERS OF THE UNITED STATES MARINE-HOSPITAL SERVICE FOR THE FOURTEEN DAYS ENDING APRIL 7, 1898.

MURRAY, R. D., surgeon. To represent Service at Quarantine Conference at Atlanta, Ga., April 12, 1898. April 7, 1898.

AUSTIN, H. W., surgeon. Detailed for temporary duty in Bureau. April 1, 1898.

MEAD, F. W., surgeon. Granted leave of absence for seven days. March 30, 1898.

CARTER, H. R., surgeon. To rejoin station at New Orleans, La. March 31, 1898. To represent Service at Quarantine Conferences at New Orleans, La., April 8, 1898, and Atlanta, Ga., April 12, 1898. April 5, 1898.

PECKHAM, C. T., passed assistant surgeon. Granted leave of absence for twenty-nine days. March 30, 1898.

WHITE, J. H., passed assistant surgeon. To rejoin station at New York, N. Y. March 31, 1898.

GEDDINGS, H. D., passed assistant surgeon. To proceed to Tortugas Quarantine and report to medical officer in command for temporary duty. April 2, 1898.

WRENTENBAKER, C. P. When relieved by Assistant Surgeon HILL HASTINGS, to rejoin station at Wilmington, N. C. April 2, 1898.

YOUNG, G. B., passed assistant surgeon. To rejoin station at Delaware Breakwater Quarantine. March 31, 1898.

OAKLEY, J. H., passed assistant surgeon. Upon expiration of leave of absence to proceed to Evansville, Ind., and assume command of Service. March 29, 1898.

NORMAN, SKATON, assistant surgeon. Granted leave of ab-
sence for four days. March 29, 1898.

TABB, S. R., assistant surgeon. Granted leave of absence for seven days and upon expiration thereof to proceed to Savannah, Ga., and assume command of Service. March 29, 1898.

MATHEWSON, H. S., assistant surgeon. Granted leave of absence for one month from April 15, 1898. March 30, 1898.

JORDAN, W. M., assistant surgeon. To proceed to San Francisco Quarantine and report to medical officer in command for temporary duty. March 30, 1898.

HASTINGS, HILL, assistant surgeon. To proceed to Middleborough, Ky., for special temporary duty. April 2, 1898.

LAVINDER, C. H., assistant surgeon. To proceed to Cape Charles Quarantine and report to medical officer in command for duty and assignment to quarters. March 30, 1898.

RUSSELL, H. C., assistant surgeon. To proceed to Pittsburg, Pa., and assume temporary command of Service. March 30, 1898.

BOARD CONVENED.

Board convened to meet at Washington, D. C., April 5, 1898, for physical examination of officer of Revenue Cutter Service, Surgeon H. W. AUSTIN, Chairman; Passed Assistant Surgeon G. T. VAUGHAN, Recorder.

CASUALTY.

EMIL PROCHAZKA, assistant surgeon, died of tubercle of lungs at Silver City, N. Mex., April 1, 1898.

APPOINTMENTS.

The following appointments have been made for Essex County of the Examining Surgeons for the United States Pension Board: President, DR. W. W. EATON, Danvers; Secretary, DR. FRANK P. ATWOOD, Salem; Treasurer, DR. G. A. STICKNEY, Beverly.

SOCIETY NOTICES.

BOSTON SOCIETY FOR MEDICAL IMPROVEMENT.—A regular meeting of the Society will be held at the Medical Library, 19 Boylston Place, on Monday evening, April 18th, at 8 o'clock.

Dr. J. E. Goldthwait will read on "The Immediate Reduction of the Deformities occurring in Pott's Disease, both With and Without Ether."

Dr. F. Cobb: "Septic Peritonitis and its Surgical Treatment; Including Reports of Four Fatal and Two Successful Cases."

Dr. F. B. Lund: "Remarks on Seven Operations for General Peritonitis, with Two Recoveries."

JAMES G. MUMFORD, M.D., Secretary, 197 Beacon St.

SUFFOLK DISTRICT MEDICAL SOCIETY.—The Section for Clinical Medicine, Pathology and Hygiene. There will be a meeting of the Society at 19 Boylston Place, Wednesday, April 20, 1898, at 8 P. M.

At 8 o'clock. Short communications by Dr. J. L. Morse: "The Principle and Limitations of Home Modification of Milk."

Dr. E. O. Otis: "The Tuberculin Test in Cervical Adenitis."

Dr. G. G. Sears: "Hemorrhagic Pericarditis."

At 8.30 o'clock. Paper: Dr. A. K. Stone, "Albuminuria."

Dr. J. B. Ogden is expected to open the discussion.

E. W. TAYLOR, M.D., Secretary, 416 Marlborough St.

AMERICAN SURGICAL ASSOCIATION.

The meeting of 1898 will be held at the Tulane Medical College, Couch and Villere Streets, New Orleans, La., on Tuesday, April 19th, Wednesday, April 20th and Thursday, April 21st.

On April 19th at 10 o'clock, the Address of Welcome will be delivered by Dr. J. Holt, of New Orleans. This will be followed by the President's Address on "The Future of the Association."

The subjects for discussion include: Etiology and Classification of Cystitis, N. Senn, M.D., Chicago. Discussion by Dr. C. H. Mastin, of Mobile, and Dr. John Parmenter, of Buffalo.

The Question of Operative Interference in Recent Simple Fractures of the Patella, Charles A. Powers, M.D., Denver. Discussion by Dr. J. D. Bryant, of New York, Dr. M. H. Richardson, of Boston, and Dr. James E. Moore, of Minneapolis.

Operative Treatment of Carcinoma of the Breast, W. S. Halsted, M.D., Baltimore. Discussion by Dr. L. M. Tiffany, of Baltimore, Dr. F. H. Gerrish, of Portland, and Dr. Rudolph Matas, of New Orleans.

The Use of Toxines in Surgical Disease, George Ryerson Fowler, M.D., New York. Discussion by Dr. P. S. Conner, of Cincinnati, Dr. Edmond Souchon, of New Orleans, and Dr. George Ben Johnston, of Richmond.

Etiology of Cancer, Roswell Park, M.D., Buffalo.

The following Volunteer Papers have been promised:

Remedial Measures in Obstruction of the Common Duct, J. McFadden Gaston, M.D., Atlanta.

Hysteria from a Surgical Standpoint, James E. Moore, M.D., Minneapolis.

Traumatic Rupture of Pancreas; Formation of Hemorrhagic Cyst; Operation; Pancreatic Fistula; Recovery, H. W. Cushing, M.D., Boston.

Nosology and Morphology of Tumors, True and False, Edmond Souchon, M.D., New Orleans.

Prostatectomy (by title), L. C. Lane, M.D., San Francisco. Some Cases not Operable (by title), David W. Cheever, M.D., Boston.

Cerebellar Tumors, N. B. Carson, M.D., St. Louis.

A Case of Appendicitis in which the Appendix became Adherent to the Bladder and Produced a Fecal Urinary Fistula, W. W. Keen, M.D., Philadelphia.

A Case of Fecal Communication with the Bladder with Resulting Calculus following Appendicitis, George B. Fowler, M.D., New York.

Gunshot Injuries of the Spine, with the Report of a Case, T. F. Prewitt, M.D., St. Louis.

Radical Cure of Femoral Hernia in the Light of Recent Methods, Rudolph Matas, M.D., New Orleans.

The entertainments provided by the Committee of Arrangements include luncheons, dinner and receptions.

The officers of the Association for the current year are: President, T. F. Prewitt, M.D. Vice-Presidents, J. McFadden Gaston, M.D., M. H. Richardson, M.D. Secretary, Herbert L. Burrell, M.D. Treasurer, George B. Fowler, M.D. Recorder, DeForest Willard, M.D. Council, N. Senn, M.D., L. McLane Tiffany, M.D., Phineas S. Conner, M.D., J. Collins Warren, M.D. President, Secretary, Treasurer and Recorder, *ex officio*.

RECENT DEATHS.

EDGAR SIMON DODGE, M.D., M.M.S.S., died in Natick, April 5, 1898, aged forty-four years.

LEVI GERRISH HILL, M.D., of Dover, N. H., died March 3d, aged eighty-five. He was born in Strafford, N. H., and was graduated from Dartmouth Medical College in 1838. He practiced in Salisbury, N. H., and Norfolk, Va.; and in 1848 removed to Dover, N. H., where for many years he had an extensive practice. Dr. Hill was a member of the Dover Medical Society, president in 1854; Strafford District Medical Society, president in 1862; New Hampshire Medical Society, president in 1869, and president of its board of trustees from the establishment of that board; vice-president of the American Medical Association, in 1881; president of the examining board under the registration law of New Hampshire during the first ten years of its existence, 1878-88.

JOHN G. PIERCE, M.D., of Yarmouth, Me., died October 28th aged fifty-four. He was a graduate of Bowdoin Medical School, and had studied at the Harvard Medical School.

BOOKS AND PAMPHLETS RECEIVED.

The Treatment of Puerperal Infection, Preventive and Curative. By F. A. L. Lockhart, M.B., and C.M., Edin., Montreal. Reprint. 1897.

The Great Omentum, with more Especial Reference to the Part Played by It in Inflammations of the Abdominal Viscera. By J. G. Adami, M.A., M.D., Montreal Can. Reprint. 1898.

Ein Chirurgischer Beitrag zum Capital "der Chronische Gelenkrheumatismus und Seine Behandlung." Von Prof. Dr. Max Schüller, Berlin. Hierzu Tafel I-IV. Separatabdruck aus den "Verhandlungen des XV Congresses für Innere Medicin zu Berlin, 1897." Wiesbaden. 1897.

A Laboratory Text-Book of Pathology for the Use of Students and Practitioners of Medicine. By Horace J. Whitacre, B.S., M.D., Demonstrator of Pathology in the Medical College of Ohio (University of Cincinnati). With 121 illustrations. Philadelphia: P. Blakiston, Son & Co. 1897.

Annual and Analytical Cyclopaedia of Practical Medicine. By Charles E. deM. Sajous, M.D., and one hundred Associate Editors, assisted by Corresponding Editors, Collaborators and Correspondents. Illustrated with chromo-lithographs, engravings and maps. Volume I. Philadelphia: The F. A. Davis Co. 1898.

Illustrated Skin Diseases: An Atlas and Text-Book, with Special Reference to Modern Diagnosis and the most Approved Methods of Treatment. By William S. Gotthell, M.D., Professor of Skin and Venereal Diseases at the New York School of Clinical Medicine; formerly Lecturer on Dermatology in the New York Polyclinic; Consulting Dermatologist to the Orphan Asylum of the Sheltering Guardian Society, etc. Portfolios 1, 2 and 3. Anatomy of the Skin, Physiology of the Skin, Therapeutics of the Skin, Classification, Functional Disorders, Pruritus, Hyperidrosis, Chronidrosis, Bromidrosis, Seborrhea, Comedo Milium, Sebaceous Cyst, Atratosis, Erythema Simplex Livedo, Urticaria, Prurigo, Purpura. New York: E. B. Treat & Co. 1898.

Original Articles.

ON SOME FORMS OF ADENOID DISEASE WHICH ARE OFTEN OVERLOOKED, AND ON CONDITIONS WHICH MAY SIMULATE ADENOID DISEASE.¹

BY JOHN W. FARLOW, M.D., BOSTON.

THE terms "adenoid disease," "adenoid hypertrophy," "post-nasal obstruction," "mouth-breathing," are so commonly associated that they are considered as almost synonymous. It is not uncommon for patients to be told that there can be no adenoid hypertrophy because there is no snoring or open mouth, and by no means infrequent that cases are referred to specialists for operation where the only symptom is inability to keep the mouth closed. So many of such cases have come to my notice that I have thought the possibility of one condition existing without the other was not sufficiently borne in mind.

The two points which I wish to make are: first, that adenoid disease often exists and causes symptoms demanding operation, without there being mouth-breathing or apparent nasal obstruction; and, second, that mouth-breathing may be caused by many other conditions than adenoid disease.

At birth the vault of the pharynx is occupied by ridges or folds of lymphoid tissue arranged like an open fan, or the cerebral convolutions, with depressions between them, the central depression being generally the largest. If the ridges increase and hang down as separate masses, the name "vegetations" is often given to them, while the term, "pharyngeal tonsil," is commonly applied to a more or less uniform, rounded, firmer enlargement with but little prominence of the ridges. The post-nasal space of the young child is small, and is merely a part of a tube which connects the anterior part of the nose with the larynx. There is practically none of the dome-shaped cavity with which we are familiar in the adult. This narrow tube is easily encroached upon by even a slight hypertrophy in any part of its length. Hence in the infant a very small amount of adenoid disease may cause a considerable amount of obstruction to breathing.

Let us suppose a child has reached the age of twelve years and the post-nasal space has developed into a good-sized cavity while the adenoid tissue has remained small. From a succession of colds, the grip, or a contagious disease, the membranes of the nose and throat have become much inflamed, and with them the adenoid tissue, where the inflammation is very prone to remain long after the rest of the nose and throat are well. As a consequence, we may have a chronically inflamed, but not necessarily obstructive, gland which pours out secretion, forward into the nose, and downward into the lower pharynx, larynx and esophagus, causing rhinitis, pharyngitis, cough, hoarseness, loss of appetite, and indigestion, sensitiveness to cold, etc. I have seen this state of affairs started up by a cold in November, continue through the winter and till warm weather.

We will call this the small catarrhal adenoid, which can occur without causing mouth-breathing in patients whose post-nasal space is of good size. I have had a number of cases under my care, from fourteen to eighteen years of age, where the growth and enlargement

of the bony framework of the post-nasal space seemed to be accompanied with quite a marked secretory activity of this pharyngeal tonsil, and the frequent and prolonged colds have given rise to the idea that the children had outgrown their strength, when, in reality, all that was needed was removal of a focus of irritation and disease. The idea that the physiological atrophy of an organ is a normal process and needs no medical or surgical interference has certainly not proved true in my experience. This atrophy often takes place at a later date than is usually assigned to it, and after the obstructive symptoms have disappeared an abnormal amount of secretion in the throat is a sign that, although the gland may be smaller, it is certainly not without activity and may require attention.

After the catarrhal symptoms have abated, and also quite apart from them, there may be disturbances caused by this relatively small growth, that is, small in comparison with the space which contains it. I think all will agree that the size of the growth is not a certain index of the number or severity of the symptoms. Some large growths may be accompanied by a minimum of discomfort, whereas in certain cases a small growth may be the starting-point for many reflex troubles. As a consequence, we are often called upon to treat cases where there is no mouth-breathing, but where various nervous phenomena demand the removal of what adenoid tissue there is. This may be true in croup, chorea, nervous twitchings, hoarseness, hacking cough, scraping of the throat, to say nothing of diseases of the ear. We may make a comparison with chronically diseased tonsils. It is not by any means hypertrophy alone which requires treatment. Small tonsils with diseased areas and follicles prone to inflammation demand attention equally with the *hypertrophied* glands. Many young persons go through a period of so-called delicate throats from diseased adenoid or tonsillar tissue without hypertrophy, and recognition of the existence and importance of non-obstructive adenoid disease should bring about a diminution in the number and duration of such cases.

Coming now to the second point, conditions which may simulate adenoid disease, any obstruction in the upper air-passages above the uvula may necessitate mouth-breathing: deviations, spurs and ridges of the septum; weakness and falling in of the alæ; catarrhal secretion which children neglect to blow out, and which adheres to and stops up the nose; chronic eczema of the anterior nares, with formation of crusts which block the nostrils. It is not very uncommon to find the openings of the nostrils too small. The interior of the nose may not be large enough for the individual. The septum may be straight and the turbinates not large, but the nose seems built on too small a plan, a sort of misfit. Children's noses are small enough at best, and any reduction in size may lead to snoring and mouth-breathing. It is often a matter of great difficulty to determine whether a given nose is large enough for its proper function. Its weak points are best observed at night. I have in mind a number of patients who habitually wear some form of internal expander at night to dilate the nostrils. As children they had many symptoms which suggested adenoid disease, but repeated examinations showed the absence of post-nasal obstruction.

Hypertrophy of the turbinates, especially of their posterior ends, in young adults may have a close resemblance to adenoid disease. The two may be asso-

¹ Read before the Boston Society for Medical Improvement, January 10, 1898.

ciated, but not necessarily so. The rare congenital closure of the posterior choanæ by a membranous or bony diaphragm, especially when the occlusion is not total, may easily give rise to the idea that the more common adenoid growth was present.

In young adults I have seen a number of instances of bilateral hypertrophy of the submucous tissue of the posterior end of the vomer, which had persisted for some time and which had been considered to be post-nasal obstruction requiring operation.

Retro-nasal fibromata springing from the basilar process may simulate adenoid disease, but when they are large they cause a much greater degree of obstruction than adenoid disease. Polypi in the posterior part of the nose, especially when projecting into and filling the post-nasal space, are a possible source of error, but are so uncommon at the age when adenoid disease is usually found that they seldom cause the mistake to be made.

I have often noticed that the post-nasal space itself was small, the distance between the Eustachian eminences much reduced, and, at times, these eminences enlarged and encroaching on the calibre of the space. This condition may go with a narrow nose, and both may have been brought about by former adenoid hypertrophy, which has atrophied subsequently leaving the bony parts too small. The post-nasal space, being thus smaller than it should be, serves to hold back somewhat the air from the nose, especially when there is any acute swelling or undue amount of secretion, and the same obstructive symptoms may exist as were present before the disappearance of the adenoid disease. This similarity of symptoms sometimes leads to disappointment on the part of parents when they fail to see the great improvement in breathing which they had hoped for as a result of operation on their children.

The distance from the soft palate to the posterior pharyngeal wall may be much diminished by a forward projection of the upper vertebræ, which is not by any means uncommon, or the soft palate itself may extend backward so far as to leave but a small cleft for the passage of the air, and hence mouth-breathing may be necessary. In such cases it is often very difficult to obtain a view of the post-nasal space with the mirror through the narrow opening, and it may be almost impossible to pass the finger up behind the palate.

The jaws and teeth may be the sole cause of the open mouth, and children with irregular and very large upper teeth often find it impossible to keep the lips closed over the teeth. The enormous, central, upper incisors which appear in some children at the time of the second dentition are plainly too large for the upper lip, which has not begun to assume adult size. If we were obliged to buy, at eight years of age, a hat that would be the right size for us when we were twenty-one, we should not be very much surprised if for a number of years we had a very poor fit. The same holds true of the teeth. These large incisors, not covered by the small upper lip, and the open mouth cause the parents to believe very naturally that there is some post-nasal growth, especially if some kind friend or neighbor repeatedly suggests this as a probability. If the mouth is kept open from necessity there may ensue pharyngitis, large tonsils, cough, disease of the nose, etc., symptoms strongly suggestive of adenoid disease.

Occasionally I have seen the tongue too large to remain comfortably between the teeth when the mouth

was closed, and, from the resulting open mouth, the post-nasal space was suspected.

The specific snuffles of the young child may simulate adenoid disease very closely; and as the post-nasal space and fauces may be too small for the passage of the finger, it is well to bear in mind the possibility of specific disease whenever nasal or post-nasal obstruction is present, especially in the infant. Specific adhesions, bands, hypertrophies, ulcerations with secretion may cause obstruction later on.

MEDICAL EXPERT TESTIMONY IN THE KELLEY MURDER TRIAL.¹

BY WALTER CHANNING, M.D., BROOKLINE, MASS.

ON April 16, 1897, the dead body of Joseph A. Stickney, cashier of the Great Falls National Bank of Somersworth, N. H., was found on the floor of the bank. Death had been produced by numerous blows on the head and by cutting the throat with a razor.

Suspicion quickly pointed to Joseph E. Kelley, who lived in the adjoining town of Berwick. He was arrested three days later in Montreal, and confessed that he was the murderer.

Experts were employed by the defence to examine into his mental condition, which led to the employment of others by the State for a similar purpose. This procedure was rendered necessary, as the law of New Hampshire specifies that, "where insanity is set up as a defence to an indictment the jury must be satisfied beyond a reasonable doubt that the killing was not produced by mental disease."

Drs. Cowles, Jelly and Channing were the State experts, and with Drs. Bancroft, Gorton and Waterman, the defence experts, examined the prisoner several times before the trial.

As a result of these examinations and the evidence brought out at the trial, all of the experts came to the conclusion that Kelley's brain was imperfectly developed and that, in the full sense of the word, he was not responsible.

This unanimous opinion led the defence to change the prisoner's plea of "not guilty" to "guilty." This change made a very important difference, as the judge under the New Hampshire law could determine the degree of guilt, and a jury was no longer necessary. The jury accordingly was dismissed, and the trial became a hearing before the judge.

It was arranged that after the evidence was all in the experts should testify, those for the defence being called first. The difference between testifying in this manner and that ordinarily pursued was marked. In this case each expert gave his testimony directly to the judge, expressing freely and unqualifiedly his personal opinion and was not made to appear the prejudiced advocate of either one side or the other.

The experts were unanimously of the opinion that Kelley's responsibility was limited because of brain defect, and they all answered in response to the question of the judge, that they thought he did not possess the capacity to form a premeditated and deliberate purpose to the degree that a sane man would.

The court established the degree of murder as that of the second degree, and the prisoner received a sentence of thirty years, as there is no sentence to life imprisonment in New Hampshire.

¹ Read before the Boston Medico-Psychological Society, December 16, 1897.

The following were some of the points of medico-legal interest suggested by the case:

(1) The value of an examination of a criminal to determine his mental condition in the presence of a large number of persons is doubtful and uncertain, and may not in itself be sufficient to accomplish the desired object.

(2) Each expert should be allowed to examine the prisoner alone.

(3) In a medico-legal case the time for the trial should be extended until the experts have had every opportunity to form an opinion.

(4) It would further the ends of justice and save expense to the State if the experts of both sides could have a conference before the trial in order that they might come to some mutual understanding, or formulate a joint opinion.

(5) A conference being out of the question before the trial, a conference during the trial would be the next best thing.

(6) It would add to the dignity of testifying in court if experts would at least endeavor to pursue such a course.

(7) The best way for the expert to express his opinion is directly to the court. The clearness, directness and reliability of his testimony are largely enhanced by this means.

(8) The hypothetical question is admirably calculated to befuddle juries; it stimulates hair-splitting on the part of counsel and obliges doctors to make fools of themselves. The truth of this was proved in the case under discussion, where there being no such question the expert was able to leave the witness-stand feeling that he had not unwittingly stultified himself.

(9) A more searching inquiry into the subject of degeneracy, and the mental status of degenerates, is desirable.

(10) Should experts define responsibility? Can they say in court a man is partly responsible? Would it be better in testifying not to attempt to draw a line between degrees of responsibility?

Clinical Department.

A CASE OF CYSTIN CALCULUS IN THE MALE BLADDER.¹

BY PAUL THORNDIKE, M.D.,
Assistant Surgeon, Boston City Hospital; Assistant in Genito-Urinary Surgery, Harvard Medical School.

THE patient, a farmer thirty-three years old, entered the Boston City Hospital from his home in Western Massachusetts on December 19, 1896, complaining of troublesome and frequent micturition. Careful inquiries into his family history revealed nothing of importance in connection with his disease, and later on, when the rarity of his disease was appreciated, further careful inquiry was made with a like result.

The history of his trouble covered five years, during which time he had suffered twelve or fifteen attacks of acute pain in the right loin and groin, associated with the passage of some gravel in the urine. During the year previous to his admission to the hospital he had been wellnigh incapacitated from work by pain and frequency of micturition.

Examination of his bladder revealed the presence of

a small, soft stone, which was readily crushed and removed on December 26th. After it was washed and dried it weighed 3.5 grammes. Dr. J. B. Ogden found upon analysis that the stone was composed largely of cystin, and after much patient and careful work was able to isolate crystals of cystin from the urine and thus establish a diagnosis of cystinuria.

The case is of interest clinically for several reasons: (1) because of its rarity; (2) because of the prominence of a characteristic symptom, namely, the liberation of H_2S from the urine and the characteristic odor therefrom; and (3) because of the absence of crystalline elements in the urine.

Prior to the operation the patient had said that at times his urine stank so as to be really offensive; but this statement did not make the impression which its importance deserved, and it passed unnoticed until later events recalled its interest and importance. Had it been given the consideration which the patient was inclined to accord it, a suggestion of the true disease might have been obtained prior to the operation. It was the odor of the sulphuretted hydrogen which was liberated by the ready decomposition of a cystin-containing urine. The urine was usually on the verge of alkalinity, decomposed very quickly and gave off the characteristic odor to which the patient objected and which was due to the decomposition of the cystin in solution in the urine. At times the urine was more acid and would keep sweet for some days, as does a normal urine; but usually it spoiled within a few hours, and sometimes within a few minutes after urination. One specimen which was passed into a sterilized bottle about 7 A. M. and was taken at once to the urine laboratory by an orderly, had spoiled an hour later when examined by the house-officer. The urine often spoiled while in the bottle at the bedside, although the bottle was emptied many times a day; and yet the urine was invariably sweet and fresh at the moment of passage.

The clinical history of this case covered a period of five years, and at the time of operation a stone weighing 3.5 grammes was removed from the bladder; and yet it was only after analysis of the calculus had made a diagnosis, and after several weeks of repeated and careful efforts by an expert medical chemist that crystals of cystin could be demonstrated from the urine.

The above-mentioned points seem to justify a clinical report of this case. Chemically the case is of such interest and rarity that Dr. J. B. Ogden has consented to present the results of his analyses in some detail and to make some remarks on the subject of cystinuria.

REMARKS ON CYSTINURIA: EXAMINATION OF THE URINE AND CALCULUS.

BY J. BERGEN OGDEN, M.D.,
Assistant in Chemistry, Harvard Medical School; Assistant in Clinical Pathology, Boston City Hospital.

URINE.

THE examinations of the urine of this patient are both interesting and instructive.

On December 20th, the day following his entrance to the hospital, the urine had the following characteristics: pale; turbid; faintly acid; specific gravity, 1.015; albumin, a slight trace; bile and sugar absent. The sediment was abundant in quantity and consisted of a

¹ Read before the Boston Society for Medical Improvement, January 10, 1898.

large amount of pus, both free and in clumps; many small round cells; an excess of neck of bladder and a few squamous epithelial cells; some blood. No casts or crystalline elements were seen. This was the only urinary record reported previous to the removal of the calculus on December 26th.

January 2d. The twenty-four-hour quantity not known. Pale; turbid; faintly alkaline in reaction; specific gravity, 1.015; the coloring matters, chlorides and phosphates diminished; uric acid relatively increased; urea, 1.51 per cent.; albumin, a slight trace. Sediment: a large amount of pus, and an excess of neck of bladder cells. A few squamous cells, and considerable normal blood; many small round cells, a few of which were fatty. An occasional hyaline and granular cast with a little fat adherent. No crystals of cystin could be found. Sulphuretted hydrogen was not detected at this time, that is, it was not noticed while the above examination was being conducted; a test for it, however, was not made. This urine was strongly acidulated with acetic acid and allowed to stand twenty-four hours, but no characteristic crystals of cystin could be found on repeated examinations.

January 5th. Pale; turbid; faintly alkaline; specific gravity, 1.013; albumin, one-sixtieth of one per cent.; urea, 1.26 per cent. Sediment: practically the same as at the last examination (see above). Cystin crystals could not be found, either in the fresh sediment or in the strongly acidulated urine after long standing. There was a very free evolution of H_2S gas, first detected by the odor and then by chemical tests.

Twenty-four-hour quantity	1,875 c. c.
Urea	23.62 gm.
Chlorine	10.68 "
P_2O_5	2.96 "
Albumin	1.1 "
Cystin	Not quantitated.
Sulphuric acid	" "

January 6th. Pale; turbid; reaction *acid*; specific gravity, 1.019; urea, 1.7; albumin, one-sixtieth of one per cent. The sediment was much the same as on January 2d, and still cystin could not be found. The urine was again strongly acidulated with acetic acid and allowed to stand two days, but cystin crystals were not found during a prolonged examination. The specimen which was acid when it was voided, and also free from H_2S , was allowed to stand until it decomposed, when H_2S gas was found in liberal amounts.

The patient was discharged from the hospital on January 8th, with the request that he show himself at Dr. Thorndike's office in about two weeks.

On February 27th, the patient passed some urine in Dr. Thorndike's office, and with the following characteristics: normal; slightly turbid; reaction strongly acid; specific gravity, 1.023; coloring matters normal; earthy and alkaline phosphates diminished; chlorides normal; urea normal (2.14 per cent.); uric acid increased; albumin, a *very* slight trace; bile and sugar absent. The sediment was considerable in amount, and consisted of pus, both free and in clumps; an excess of neck of bladder and a few squamous cells. Many small round cells, some fatty, and some normal blood. No casts detected. There was a prolonged search made for cystin crystals, but none were found. The urine was divided into two portions, one of which was allowed to decompose, the other was strongly acidulated with acetic acid, allowed to stand three days, and examined for cystin crystals with a negative

result. This acidulated specimen was left standing on my table for a period of four weeks without being disturbed or examined. At the end of this time there was found to be a heavy deposit of uric-acid crystals, and a few large hexagonal plates of cystin. After decanting the clear supernatant fluid from the sediment, it was rendered alkaline with ammoniac hydrate, heated, filtered, and the filtrate evaporated to a few drops. A small portion of this liquid was evaporated to dryness on a glass slide, and a few cystin crystals were found. The portion of urine which was left to decompose was found to contain traces of H_2S .

CALCULUS.

The crushed calculus and the bladder washings were submitted for analysis. The fragments varied in size from the head of a pin to a pea, and a small portion was in the form of a fine powder. The fragments and powder were washed once with distilled water, by decantation, then carefully dried at a low temperature and weighed. The weight of all amounted to 3.5 grammes. The largest fragments showed that the stone was made up of a grayish substance, constituting its body, and a very thin, practically colorless, outer coat.

Analysis of Calculus, Body.—A small fragment was heated on a platinum foil, and found to burn with a bluish flame and to give off the odor of SO_2 . Another portion of the body of the stone was ground to a fine powder and some of this dissolved in weak ammoniac hydrate, a drop of the solution evaporated to dryness on a glass slide and examined microscopically; many hexagonal crystals of cystin found.

The powder did not respond to the *marexide* test (absence of uric acid and urates).

When a portion of the powder, suspended in water, was boiled, it was found to be practically insoluble, but completely dissolved on the addition of strong hydrochloric acid, without effervescence (absence of CO_2); this solution was neutralized with ammoniac hydrate, and no precipitate (absence of phosphates); filtered and added a solution of ammonium oxalate to the filtrate—no precipitate (absence of calcium salts).

Analysis of Outer Coat.—This thin outer coat was treated in the same manner as the body, and found to consist chiefly of ammonio-magnesium phosphate, a trace of calcium salts and a small amount of cystin.

The examination of the urine and concretion showed that we were dealing with a case of chronic cystitis due to the presence of a cystin calculus. There was also evidence of some renal disturbance, apparently of the nature of an active hyperemia and not a primary disease of the kidneys, for a single examination of the twenty-four-hour urine showed that the kidneys were doing very good work, especially for a man who was confined to his bed and on a limited diet.

Cystin ($C_2H_6NSO_3$) is an amido acid which is only rarely met with in the urine. Its presence can only be determined with certainty by an examination of the urine. It usually occurs in solution and can, for the most part, be precipitated by strongly acidulating with acetic acid.

Frequently it separates from the urine inside of the body, and when the urine is passed it is found to have an abundant sediment of colorless hexagonal plates, the angles of which, according to Niemann,¹ measure 120° , or single quadrilateral prisms or groups of prisms.

¹ Archiv. f. klin. Med., xviii, p. 289.

The danger of a calculus formation always attends the separation of cystin from the urine inside the body. Where a concretion exists, it is usual to find few (sometimes many) isolated crystals of cystin.

Cystin calculi vary in size from microscopic concretions to large calculi, and may, by their irritation, produce a mild or severe inflammatory process in that part of the urinary tract in which they are deposited. They usually have a grayish color at the time of their removal from the body, but very soon undergo a change of color, becoming greenish, due to the exposure to air and light (oxidation).

When a urine containing cystin decomposes, its decomposition is attended with the evolution of H_2S , for the reason that the cystin contains 26 per cent. of sulphur.

Its amount in the urine undergoes considerable variation at different times, and it may temporarily disappear. The daily quantity may reach as high as one and one-half grammes (Toel). Ordinarily, however, the quantity does not go so high, but varies between a few milligrammes and one gramme.

Cause of Cystinuria.—Previous to 1888–89 it was thought to be due to abnormal processes of oxidation in the liver, since, in some respects, cystin resembled *taurin*. Marowski² considered it a vicarious elimination of *taurin* because in his case there was an absence of bile in the intestine.

The experiments of Baumann and v. Udránszky, Brieger, and others threw new light on the causation of this condition. They found that certain products of intestinal putrefaction, called *diamines*, were eliminated in the urine and feces of persons afflicted with cystinuria. Baumann and v. Udránszky³ made frequent examinations of the urine of a case of cystinuria for diamines and found them regularly. They were isolated in the form of a benzoyl compound, which varied in amount from 0.2 to 0.4 gm. in twenty-four hours. Approximately one-third to one-fourth of these substances existed as Tetramethyldiamine, and the remainder as Pentamethyldiamine.⁴

According to Brieger, since these diamines arise only as the result of putrefactive processes due to specific bacteria, cystinuria can be considered the result of a specific infection of the intestine.

In Baumann's case (mentioned above) both diamines were invariably found in the feces as well as in the urine, and he observed that the relative amounts of these substances in the feces, particularly the cadaverin, varied inversely as those in the urine. Neither Brieger nor Baumann were able to discover these diamines in the feces of healthy individuals, or in those suffering from other diseases.⁵

So far as has yet been determined, no definite relation exists between the formation of cystin and the diamines, although the same conditions which produce diaminuria usually also produce cystinuria.

Hereditary predisposition certainly appears to have some bearing as a cause, since so many cases have been reported of the existence of the affection in several members of the same family. It is difficult, however, to explain the hereditary transmission of cystinuria by the theory of Brieger, unless we assume that such in-

dividuals are more susceptible to the action of the "specific bacteria," which produce the intestinal putrefaction, than others.

Cystin is met with in the urine of both infants and adults, but only rarely occurs in old age. It does not appear to be connected with any local or constitutional disease. It may be present and continue for years without any noticeable impairment of health, although there is usually more or less irritation of the urinary tract, as a result of its separation from the urine.

The evolution of H_2S gas from the urine should always lead to its examination for cystin, although H_2S is not always due to the presence of cystin. Oftentimes silver coins carried in the pockets of patients having cystinuria are blackened by the sulphuretted hydrogen evolved. (Cystin is sometimes eliminated by the sweat, hence the H_2S .)

It is important to distinguish between the crystals of cystin and other like crystalline elements. It can be distinguished from the pale six-sided crystals of uric acid by allowing a drop of weak ammoniac hydrate to mingle with the deposit on a glass slide, when either form of crystals disappears, evaporate, and if cystin be present the crystals reappear; if uric acid, crystals of ammonium urate will be found, instead of those of uric acid. Another simple method consists in treating the crystals with hydrochloric acid, which readily dissolves the cystin, but leaves uric acid unchanged. From triple-phosphate, it is distinguished by its behavior with acetic acid, which readily dissolves the phosphate crystals, while cystin remains unchanged.

Our case represents the importance of the chemical examination of all calculi, both from a diagnostic and prognostic point of view. A person who has once had a cystin calculus is very likely to have another, the liability, perhaps, being greater than when formed of the other crystalline elements, since, so far as I have been able to learn, no satisfactory treatment has yet been instituted for the relief of cystinuria.

TWO CASES OF SPONTANEOUS RUPTURE OF THE UTERUS DURING LABOR.

BY J. J. HEALY, M.D., NEWBURYPORT, MASS.

DURING a practice of over twenty-five years I have attended upwards of three thousand confinements. It has been my lot to see about every anomaly and complication mentioned in the text-books. I have lately had a case of spontaneous rupture of the uterus, in a healthy woman, during labor at full term. Both mother and child died. This is the second case in my lifetime. The following are the notes of these cases:

CASE I. Mrs. M., aged thirty years, a large, fat woman, weighing 180 pounds. Had had several children, with tedious labors. Was called to attend her in confinement, November 18, 1872. Found her at 7.30 P. M., in hard labor, with head high up and not yet engaged in pelvis. Liquor amnii had escaped several hours before. The uterine contractions were so strong, with no advance of head, that I advised ether and forceps delivery. I could not obtain the consent of the family till 10.30 P. M. at which time the patient went into a collapse, Dr. Montgomery assisted me in giving ether and applying the forceps. A dead child was delivered and the placenta removed. I examined and found a large rent in the body of the

¹ Deutsches Archiv. f. klin. Med., iv, p. 449.

² Ztschr. f. Physiol. Chem., 1889, xiii, p. 562.

³ Brieger gave new names to these two substances, calling the first *putrescin* and the latter *cadaverin*.

⁴ According to Neubauer and Vogel these diamines have been found in the intestinal discharges of patients with Asiatic Cholera. Analyse des Harns, Ninth Edition, 1890, p. 87.

uterus extending transversely about half the circumference of the uterus, the lower segment including the lower third of the body. The weight of the child was fifteen pounds. Death of the mother followed immediately on delivery.

CASE II. Was called, February 17, 1898, at 9.30 P. M., to attend Mrs. M. T., in her fifth confinement. Previous confinements had been normal. Nothing in the condition of the patient on this occasion to warrant any apprehension. She was a strong, healthy woman, having up to the time of labor setting in done her own housework. Shortly after my arrival the bag of waters broke; amount large. Head not yet engaged at brim; R. O. P. Expulsive pains came on, and head advanced rapidly. At 10.30 P. M. the head was distending perineum; occiput had passed under pubic arch; and I expected immediate termination of the labor, when all pains suddenly ceased and the patient went into a collapse. The head receded to brim of pelvis and the body of the child could be felt under the abdominal wall, I summoned assistance, and in a few minutes Dr. C. C. Day arrived. Ether was cautiously given and forceps applied. The head was easily delivered, but the extraction of the shoulders gave me considerable difficulty; all of the child had, in fact, escaped from the uterus except the head, and it required no little tact to disengage the shoulders and press them into the hollow of the sacrum while my assistant made traction downwards by means of a fillet around the child's neck.

I made an examination, and found a transverse rent extending about two-thirds of the circumference of the uterus, the posterior wall being intact, and the lower segment, including about the lower fourth of the body of the uterus. The placenta was easily separated and delivered; it was attached to the upper posterior portion. When I removed the placenta, some coils of small intestine came down through the laceration in the uterine wall into the vagina. The patient continued in the collapse, and died immediately after delivery.

I am unable to assign any cause for the untoward accident that brought about death in both the above cases. Both women were young—one of fair, the other of more than average vigor; and no ergot or other medicine provocative of uterine contractions was used.

Medical Progress.

PROGRESS IN PUBLIC HYGIENE.

BY S. W. ABBOTT, M.D.

CONVEYANCE OF INFECTIOUS DISEASES BY MEANS OF THE AIR.

DR. E. GERMANO¹ reports the results of a series of experiments in continuance of those already reported. The later series relate to diphtheria, erysipelas and pneumonia. He reports the following conclusions in regard to the spread of diphtheria:

(1) The diphtheria bacillus can resist drying for a long time, both in the membrane, in the tissues and when present in dust.

(2) Increased rapidity in drying, even by means of sulphuric acid, does not affect the resisting power of the bacilli either in the tissues or in the dust.

¹ Zeitschr. f. Hygiene, vol. xxv, No. 3, and xxvi, No. 1.

(3) The bacillus survives better the more it is surrounded by dust, probably on account of its greater protection from oxidation.

(4) When dried completely, the bacillus retains its virulence until it dies.

(5) The air can carry diphtheria while living, by means of dust.

With reference to streptococci, he says:

(1) The power of surviving the drying process depends largely on the mode in which this is carried out, and the material with which it is mixed.

(2) At any rate, its power of resistance is great and can continue for months.

(3) The rapidity of drying has no effect on the vitality of the streptococci.

(4) The resisting power increases with the amount of material in which it is implanted, and which protects it from the air.

With reference to the streptococcus pneumoniae, to which he attributes pneumonia and sometimes meningitis, pleurisy and acute nephritis, he concludes:

(1) The diplococcus is a micro-organism which can resist drying for a long time.

(2) It survives better when dried than when moist.

(3) As it can under some conditions exist in a dry condition for a long time, but not to the same extent as the *streptococcus erysipelatosus*, the possibility of its conveyance through the air is established.

THE SPREAD OF INFECTIOUS DISEASES BY MEANS OF BATHS AND SUMMER RESORTS.²

The following propositions are laid down by Dr. Battlehner, of Carlsruhe, at the close of a discussion by the German Society of Public Health, with reference to public resorts, camp-grounds and places where people congregate in large numbers:

(1) It is quite possible that summer visitors may carry and spread infectious diseases at bathing-places and summer resorts.

(2) In such places care should be taken to secure a good water-supply. The buildings should be provided with good sanitary arrangements. The streets should receive especial care, the sweepings should be regularly collected and taken care of, and the foul water and surface drainage should receive attention.

(3) Where bathing tanks are in use, the water should be frequently renewed and examined.

(4) Sanitary police regulations should be enforced as in other places.

(5) Notification of infectious diseases should be required of all physicians as a means of preventing their spread.

(6) Disinfecting apparatus and well-instructed attendants should be provided.

(7) If there is no hospital a separate room should be provided for persons ill with infectious diseases.

(8) There should also be a house for the reception of dead bodies.

THE CONTAGION OF SPORADIC DYSENTERY.

During the past fifty years dysentery has gradually diminished in its destructiveness throughout New England and the severe epidemics of the period from 1840 to 1870 have been followed by a similar period of comparative immunity from the disease.

In 1849, an epidemic year, dysentery attained the very high death-rate of 25.4 per 10,000 of the living

² Vierteljahrsschrift f. öff. Gesundheitspflege, 1898, vol. xxx, p. 22.

population in Massachusetts. In the five-year period 1861-65 it had a mean death-rate of 7.8 per 10,000; but from that time onward it diminished with considerable uniformity until the five-year period 1891-95 when the death-rate from this cause was only .9 per 10,000.

During the past two years, however, there has been a slight increase, and local epidemics have been reported from Brockton, Leominster, Marlboro, Yarmouth and other places.

In a recent journal⁴ Dr. Letulle cites several cases to show the liability to a mistaken diagnosis in this disease. In one a laparotomy was performed for cancer of the intestines, when a dysenteric ulceration revealed itself. In other cases which occurred at a hospital in Paris, one pronounced cancer of the rectum proved by autopsy to be dysentery, another case, entered as influenza, was shown upon autopsy to be one of dysentery, etc.

Dr. Letulle made inquiry with reference to the possibility of contagion, and found that in one ward of 25 beds only one or two enema syringes were in use, and that two of the patients having dysentery had probably been treated with the same apparatus. He goes on to affirm that dysentery is contagious not only in Algeria and other warm countries, but also in France.

Dr. Lemoine has also published a series of cases in support of this view. These cases demonstrate the necessity of adherence to aseptic principles in the treatment of this disease.

THE SPREAD OF DIPHTHERIA.

The following conclusions are from the final chapter of Dr. Newsholme's new work upon "Epidemic Diphtheria," being a review of its prevalence throughout all civilized countries:

"If the occurrence of pandemics of diphtheria is governed largely, if not chiefly, by meteorological conditions over which we have no control, what scope is there for the intervention of preventive medicine? Before answering this question, let it first be clearly stated that we must have the truth at any cost. If the statement of the truth by implication means that our preventive measures are but Canute-like attempts to stop the inflowing tide, still it is well that the truth should be known. But this is not a correct view of the case. Diphtheria is spread chiefly by *personal infection*. This personal infection is immensely more potent in epidemic than in inter-epidemic years—a fact which should lead to redoubled efforts to prevent personal infection during such epidemic periods, rather than to a fatalistic inertia. Similarly redoubled efforts are required to prevent ground-air from gaining admission into houses, and to render more wholesome the soil in districts in which diphtheria has become endemic. How this can be done in towns, how the soil can, without more open spaces than are obtainable in most of our great cities, be made to resume its virgin salubrity and purity cannot be stated here. It is one of the greatest problems of public health. But to assume that because we do not yet know how to exterminate diphtheria, or because we cannot hope in our day to be entirely successful in preventing its spread, it is therefore useless to attempt anything, would be as unwise as it would be for a city council to dismiss their fire-brigade staff and dispose of their

fire-preventing apparatus because the staff had not been successful in at once extinguishing every fire, or because the city council were impressed with the fact that the present appliances for extinguishing fire are of a very imperfect character."⁴

KISSING THE BOOK.⁵

The danger incurred by kissing the Testament in a court of law is emphasized by a statement of Dr. Lys, medical officer of health to the Wareham Rural District Council. In his annual report just forwarded to the Council, Dr. Lys says:

"The death of a constable at Coombe, in the parish of Langton Matravers, in January, was registered as due to acute ulceration of the throat (diphtheria), and there is every reason to attribute his fatal illness to the dangerous practice, from a sanitary point of view, of 'Kissing the Book' on being sworn. He had attended the Petty Sessions at Wareham, and given evidence shortly before the commencement of the attack. The sanitary state of the cottage was satisfactory, and the water-supply was proved by analysis to be excellent."

THE SEWAGE DISPOSAL OF PARIS⁶ AND OF LONDON.⁷

The sewerage and sewage-disposal of Paris, begun in 1865, have been perfected by the Law of 1894, which decreed that all household sewage should go to the sewers. There are now three main outfalls, at Asnières, Bievée and the Northern outfall. The stimulus to this perfected system was the outbreak of cholera in 1892, which was believed to be partly due to the defective condition of the sewers.

In addition to the existing areas for irrigation at Gennevilliers, new areas are now provided at Achères. This sewer crosses the Seine at those places, and the sewage is pumped twice, at Clichy and at Colombes. Provision is made for future extension of the system at Méry, and also farther down the river. The entire works will probably be finished by 1900, at which time the whole volume of sewage will be removed from the Seine.

Until about a dozen years ago the sewage of London was allowed to flow into the Thames without purification of any kind. But, after the "Report of the Royal Commission upon Metropolitan Sewerage," measures were taken for treating the entire flow of sewage chemically at two places, Barking and Crossness, upon opposite sides of the river below Greenwich. Lime and iron are used for this treatment, and the resulting sludge is towed down the river and out to sea in barges.

The subject of the sewage-disposal of London is very fully treated in the "Transactions of the British Institution of Engineers,"⁸ in two papers by Messrs. Worth and Crimp, and W. J. Dibdin, and in a valuable discussion upon them at the meeting of that Society in February, 1897.

For the purpose of securing a purification of the effluent from the tanks, Professor Dibdin has experimented with a filter based upon the Massachusetts experiments, but constructed of coke-breeze, instead of sand, and he claims that better results can be secured

⁴ Epidemic Diphtheria, by Arthur Newsholme, M.D., London, 1896.

⁵ English paper, February, 1898.

⁶ Annalen für Gewerbe und Bauwesen, May 15, 1897, p. 195.

⁷ Proceedings of British Institution of Civil Engineers, vol. cxxix, 1897, pp. 49, 80.

⁸ Vol. cxxix, 1897, pp. 49-187.

⁸ Presse Médicale, December 26, 1897, p. 289.

than are possible with sand and gravel. The general results secured by the precipitation method adopted at London, while much less perfect in character than those which are secured by land treatment, nevertheless, have effected considerable improvement in the water of the river, as was testified at this meeting by many who joined in the discussion.

Professor Corfield did not believe the system could long continue to be successful, and "could not help thinking that if the money which had been spent in trying to purify the sewage of London by means of precipitation and filtration had been spent in taking it out farther, as had been proposed, to the Maplin Sands, or some other suitable place, and disposing of it by irrigation, that money would have been very much better spent. He thought that would be resorted to in the end, however much money might be spent on experiments."

REQUIREMENTS OF A SEWAGE-EFFLUENT.

The following conditions are laid down by Drs. Dibdin and Thudichum as essential to a sewage-effluent:

- (1) It must contain, practically, no solids in suspension.
- (2) It must not contain in solution a quantity of organic matter sufficient seriously to rob of its oxygen the stream into which it is discharged.
- (3) The organic matter it contains must be in such a condition as to yield readily to the natural purifying influences exerted upon it.
- (4) It must not be liable to putrefaction or secondary decomposition.
- (5) It must contain nothing inimical to microbial growth and activity; in other words, it must not be sterilized or treated with antiseptics.
- (6) It must not contain pathogenic organisms.

(To be continued.)

RECENT PROGRESS IN PHYSIOLOGICAL CHEMISTRY.

BY HENRY F. HEWES, M.D., BOSTON.

(Concluded from No. 15, p. 351.)

EXCESSIVE MUSCULAR EXERCISE AND METABOLISM, INFLUENCE OF TRAINING.

DUNLOP has conducted an investigation upon the influence of muscular exercise upon the body metabolism.²³

Subjects upon a measured diet were given exercise, as an eighty-mile bicycle ride, and the excretion of nitrogenous products, sulphur, phosphorus and chlorine estimated. The results showed—

- (1) That excessive muscular exercise entails an increased consumption of proteid food.
- (2) That the proteid consumed is muscle proteid, since the increase of nitrogen and sulphur in the excretions is not accompanied by an increase of uric acid, nitrogenous extractives and phosphorus. Muscle being poor in nucleo-proteid elements, from which the latter products (uric acid, etc.) arise, a waste of muscle proteid does not give rise to these products.
- (3) That if a subject is in poor training the consumption of muscle proteid is accompanied by a consumption of other body proteids as evidenced by in-

crease of uric acid, phosphorus, etc., in the excreta, but in trained subjects of muscle proteid alone.

The investigations show the importance of training as sparing of the loss of the structural proteids in hard exercise; also the importance of an increased proteid diet to meet the requirements of the body as a result of such exercise.

THE ABSORPTION AND SYNTHESIS OF IRON.

The investigations of Gaule,²⁴ Hochhaus and Quincke,²⁵ Kunkel,²⁶ Wolfering²⁶ and Häusermann²⁷ prove that absorption of inorganic iron occurs in the organism. The absorption occurs in the duodenum.²⁴ The investigations of Gaule and of Häusermann indicate that the absorbed inorganic iron may be synthesized to hemoglobin in the body.

Häusermann experimented with three sets of animals, made anemic by feeding with food from which it was impossible to assimilate the necessary amount of iron. In the investigation Set 1 was fed upon iron poor diet; Set 2 upon the same iron poor diet, *plus* doses of inorganic iron not large enough to disturb digestion; Set 3 upon a normal iron rich diet. After one month the animals were killed, and the total hemoglobin and total iron of the body estimated.

Set 2 showed a higher iron content than Set 1, thus indicating the absorption of inorganic iron.

Set 2 showed a higher hemoglobin content than Set 1 in some of the animals (the dogs), thus indicating synthesis of the inorganic iron to hemoglobin.

Set 3 showed much higher iron content and higher hemoglobin content than Set 2, thus evidencing the superiority of the assimilation of the organic iron of food over that of inorganic iron preparations.

The author concludes that the first treatment of anemia should consist in a diet of foods rich in iron. To this small amounts of inorganic iron may be added if it is impossible to give the necessary iron supply in food.

The author gives a table of the iron contents of the various food substances.

Gaule²⁴ proves the absorption of inorganic iron by finding the absorbed iron in the thoracic duct changed to an organic iron compound. He shows²⁹ the synthesis of the inorganic iron to hemoglobin by estimating this product in several animals before and after treatment with inorganic iron.

The author traces the absorption of the fluid by micro chemical reactions with Hall's NH_4SH mixture from the duodenum to the blood. The only organ in which it is present in the tissue by this reaction is the spleen. The author assumes that the iron is here synthesized to a firm organic compound not reduced by the NH_4SH . He finds an argument in favor of this assumption in the fact that the spleen increases in weight during the ingestion of iron, but falls below the original weight after twenty-four hours, thus evidencing the giving up of the received iron *plus* some of its organic substance.

THE BLOOD IN HIGH ALTITUDES.

Two explanations are offered for the increase in the hemoglobin content and corpuscular richness of the

²⁴ Gaule: *Zeitschr. f. Biologie*, Bd. xxxv, s. 377.

²⁵ Hochhaus u. Quincke: *Arch. Exp. f. Path. u. Pharm.*, Bd. xxxvii, 156.

²⁶ Kunkel: *Pflüger's Archiv*, Bd. lxi.

²⁷ Wolfering: *Zeitschr. f. Physiol. Chemie*, Bd. xxi.

²⁸ Häusermann: *Loc. cit.*, Bd. xxiii, 555.

²⁹ Gaule: *Deutsches med. Woch.*, Nos. 19 and 28, 1896.

³⁰ Gaule: *Zeitschr. f. Biologie*, Bd. xxxv, s. 377.

²³ *Journal of Physiology*, vol. xxii, p. 68.

blood of the peripheral circulation in a sojourn in high altitudes:

- (1) A concentration of the blood.
- (2) An increased production of hemoglobin and red corpuscles.

Weiss has proved experimentally that no actual increase in the hemoglobin content of the body exists in these cases.³⁰ Nine animals were kept in high altitudes for a period of one month. At the end of this time the increase in the number of red corpuscles by count was noted, the animals killed, and the hemoglobin content of the body determined. Nine control cases were kept in the lowlands and investigated in the same manner. The results showed an increase in the number of red corpuscles of from 12 to 24 per cent. in the highland animals. The hemoglobin content of the animals remained unchanged.

The conclusion is that the increased corpuscular richness is due to the concentration of the blood.

ACETONE.

The subject of acetone formation and elimination in the animal organism has been investigated by Geelmuyden.³¹

Accepting the well-established fact that acetonuria occurs in the healthy organism in conditions of starvation, or under the administration of a strictly flesh diet, as well as in diabetes, this author has investigated in animals the conditions governing the appearance of acetonuria.

By the administration of known amounts of acetone and the quantitative estimation of the elimination product in the urine and expired air, the author proves that though the organism possesses to a slight extent the function of breaking up acetone, this function is too weak to hinder the appearance of acetonuria if more than the normal trace (two milligrammes in a hundred cubic centimetres) of acetone is formed in the body.

From this he concludes that acetonuria cannot be due to a failure in the action of a normal function for disintegration of acetone, but is due presumably to an over-production of acetone.

By the administration of carbohydrate diet together with the acetone, the author proves that a function of transforming acetone is not induced by carbohydrate metabolism. He concludes that the well-established action of carbohydrates in reducing alimentary or diabetic acetonuria, is therefore due to some action of the carbohydrate elements exerted before the formation of the acetone in the system.

By the administration of a diet of normal calories worth composed exclusively of proteid and fat, with varying amounts of fat, he proves (1) that the acetone production which occurs is proportionate to the quantity of fat in the diet; and (2) also that there is in such conditions a loss of body fat.

In consideration of the following facts—(1) that the acetone production in a strictly proteid diet, does not increase, but decreases, with the quantity of proteid given; amounts at most to 40 milligrammes; and is accompanied by a metabolism of body fat; (2) that the acetone production on a mixed proteid and fat diet increases with the quantity of fat given, and amounts frequently to 100 to 200 milligrammes—the author concludes that the production of acetone

is principally dependent upon the metabolism of fat in the body.

By the administration of carbohydrate in varying amounts to cases with a proteid and fat diet acetonuria, the author proves that the presence of carbohydrate in the diet in a normal subject prevents the appearance of acetonuria, or if the acetonuria be already present checks it. This occurs even in cases where the calorie needs of the organism are not satisfied, that is, where the nitrogen loss exceeds the ingestion. The carbohydrate does not, however, act in the manner of a ferment, but a supply of 100 to 200 grammes of carbohydrate per day is necessary with a normal food supply.

The general conclusion of the author is—

(1) Acetonuria occurs if a sufficient quantity of carbohydrate food does not undergo metabolism in the body. If such a quantity of carbohydrate can be transformed in the body, an existing acetone formation can be checked by its administration.

(2) In the acetonuria which occurs with absolute starvation, with pure fat diet, or with mixed fat and proteid diet, the metabolism of the fat appears to be the principal, if not the total, cause.

Hirschfeld, in a series of investigations upon the production of acetonuria in normal individuals and in diabetics, shows that the same conditions govern this production in health and in diabetes.³² The author found that in normal individuals, whose diet included a sufficient amount of carbohydrate (100 gm.), the acetone excretion amounted to .04 to .04 gm. per day. Upon removal of the necessary carbohydrate from the diet the acetone excretion rose. An excessive proteid food supply caused some lowering in this acetone excretion. Resumption of carbohydrate reduced the excretion at once to its normal level.

In cases of glycosuria in which the metabolism of a sufficient quantity of carbohydrate (100 gm.) was possible, the excretion of acetone was the same as in normal individuals. This excretion rose with removal of carbohydrate and fell with resumption.

In cases of diabetes in which the glycosuria represented one-half the ingested carbohydrate—cases in which 100 gm. could not undergo metabolism—the acetonuria was present. The excretion amounted to 50 to 100 milligrammes. Removal of carbohydrate caused a rise of excretion, but to no greater height than with normal individuals. The fall, however, upon resumption of carbohydrate was less rapid than in normal cases.

In the severe cases in which almost no ingested carbohydrate could undergo metabolism and the sugar in the urine was formed from proteid, the acetone excretion could be diminished by the ingestion of carbohydrate but very slightly and this but very slowly, perhaps in the course of a month.

The author concludes that it is in those severe cases of diabetes only, cases in which a larger part of the carbohydrate food appears unconsumed in the urine, that a pathological acetonuria, pathological in the sense that a similar condition does not appear under like conditions in the normal individual, is found to be present.

The acetonuria of a case of diabetes has special significance only in cases where it exists in association with the ingestion of 100 gm. of carbohydrate food.

³⁰ Zeitschr. f. Physiol. Chemie, Bd. xxii, s. 536.

³¹ Loc. cit., Bd. xxiii, s. 481.

³² Hirschfeld: Zeitschr. f. klin. Med., Bd. xxxi, s. 312.

Reports of Societies.

BOSTON SOCIETY FOR MEDICAL IMPROVEMENT.

JAMES G. MUMFORD, M.D., SECRETARY.

REGULAR Meeting, Monday, January 10, 1898, DR. A. L. MASON in the chair.

DR. W. H. BAKER reported

A CASE OF UNDEVELOPED UTERUS WITH CONGENITAL ABSENCE OF THE LEFT OVARY.

Miss B. S., age twenty-eight, single, entered Free Hospital for Women, December, 1897, having been treated for some time at the out-patient department of that institution. She complained of severe back-ache, which was greatly increased at the menstrual periods. Her menstruation, which began at seventeen years of age, had occurred every two weeks during most of her life, until her treatment as an out-patient a few months before, the flow being excessive and accompanied by some clots. On examination the right ovary was found enlarged and prolapsed into Douglas's fossa. The uterus retroverted.

Operation of celiotomy on December 30th. On opening the abdomen I found the left portion of the uterus poorly developed, being only one-third its natural size. The left tube was exceedingly small and there was an absence of the left ovary. In its place there was simply a white line about one centimetre wide and four centimetres long. The right half of the uterus seemed fully developed, the right tube of normal size, and the right ovary fully three times its normal size. The size and weight of the ovary had undoubtedly been the cause of the backward displacement of the uterus. No adhesions were present. Section of the ovary was made, removing the lower two-thirds, sewing the wound together with interrupted silk stitches, and stitching its lower angle to the side and upper part of the uterus. The uterus was then brought forward, and stitched to the abdominal fascia by silk stitches. She is making a good recovery from the operation.

The case is of interest on account of the infrequency with which an absence of the ovary is found where there is any attempt at development of the uterus. Nature seems to have attempted to make up for the loss in this instance by the over-development of the right ovary, for this right ovary was found to be healthy and normal in its structure in every way, as proved by subsequent examination of the portion of the ovary removed, by Dr. W. F. Whitney and Dr. W. H. Grant.

I have several times observed cases where there was absence of the uterus and vagina, but even in these cases have been able to detect a more or less developed ovary; but this is the first instance where I have met a congenital absence of the ovary.

PULSATING ARTERIES.

DR. J. W. FARLOW: I show you here a patient who has two large, visibly-pulsating arteries, one on each side of the pharynx, right under the mucous membrane. To the finger they are very evident, and feel about as large as the radial. Several years ago I reported five similar cases¹ and later I saw seven. They are presumably abnormally situated ascending

¹ Boston Medical and Surgical Journal, March 31, 1897.

pharyngeal arteries, branches of the external carotid; and the possibility of the existence of such vessels should be borne in mind when operating on the posterior pharyngeal wall, especially in opening a retro-pharyngeal abscess.

Fig. 1 shows the appearance in this case and Fig. 2 gives the anatomy of the vessels of the region.

CHRONIC CATARRHAL PROCESS FOLLOWING SCARLATINA.

Dr. J. W. Farlow: I show you also a patient who came to my clinic five weeks ago. Several years ago he had scarlatina, which was followed by a swelling at the inner side of the left eye, with some external displacement of the eyeball. An incision at that time gave exit to nothing in particular, and was considered to have injured rather than helped the patient. Two years ago he consulted an oculist to find out

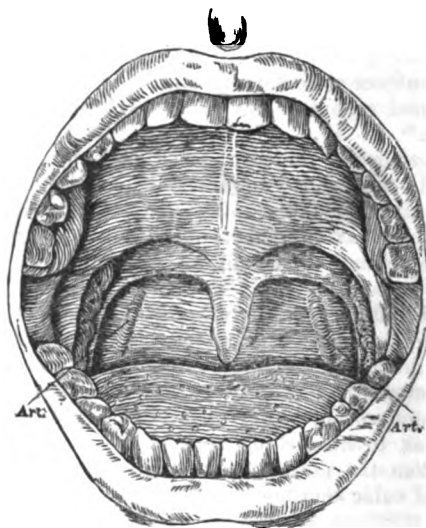


FIG. 1.

whether something could be done to improve his looks, the eye protruding somewhat forward and to the left. There was no pain and vision was perfect. He was advised to wait.

Shortly before coming under my care the swelling on the inner side of the left eye began to increase, and the eye was pushed forward beyond the bridge of the nose, outward and downward. There was much swelling above the eye and an irregular, sharp, bony projection in the neighborhood of the orbital plate. The eyelid was edematous and the lids nearly closed. There was also thickening of the bones below the orbit—the superior maxilla and malar. There was no history of nasal discharge, but the tears had overflowed for some time. The inner side of the orbit was painful to the touch and there was pain in the head.

An operation for supposed tumor had been proposed and enucleation of the eye.

When I saw him there was no discharge of pus or other secretion in the nostril. The middle turbinate bone was somewhat enlarged in its anterior portion and pressed against the septum. The recent acute and sudden increase of swelling with the absence of discharge in the nose led me to the conclusion that a blocking up of the natural drain of the frontal and ethmoid cells had caused the blocking up of secretion

in these cavities with consequent distention, edema, etc. With a cold wire ecraseur I removed the anterior end of the middle turbinate and there appeared immediately a very profuse discharge of tenacious, glairy fluid which protruded from the nostril like an enormous polyp. When this was wiped away more came to take its place, like soap bubbles out of an inverted pipe. Then a thin watery discharge, and again more of the thicker substance, all without odor. The amount was estimated at about four ounces. The patient immediately felt relieved, and the swelling about the eye diminished, but the hard swelling under the eye was as before.

An examination of the fluid removed showed much mucus, a few fatty degenerated cells, fairly numerous desquamated, cylindrical, epithelial cells lined with many cilia, occasional leucocytes, and a little blood. Examination for organisms negative. Diagnosis: a chronic catarrhal process.

Subsequent treatment has consisted in removing more of the middle turbinated bone, curetting and cutting the ethmoid cells to secure free drainage and washing out the cavity.

Transillumination had shown both sides of the face to be dark and was of no positive value. Thinking that the apparent thickening of the bone under the eye might be due to antrum disease, I punctured through the inferior meatus and succeeded in washing out a very large amount of grayish, flocculent, odorless secretion. When the antrum was empty transillumination showed a faint outline of light under the left eye.

The patient is still under treatment; but the amount of discharge through the middle turbinate is very much diminished, the swelling about the eye is much reduced, and the eye, as you see, has returned somewhat to its normal position, and he feels much improved. I suppose it will be necessary to drill into the antrum through the alveolar process in order to secure free drainage, but I do not care to do this until the middle meatus is much freer, and the opening through the turbinate made larger.

It seems to be a case of disease of the frontal sinus, the fronto-ethmoid cells, ethmoid cells and the antrum. It is possible that there is a communication between the upper cavities and the antrum, and that the latter has become affected from the former.

The discharge of pus through the opening of the middle turbinate after removal of its anterior end shows that there were ethmoidal cells in the middle turbinate.

Dr. J. W. Farlow also read a paper on

SOME FORMS OF ADENOID DISEASE WHICH ARE OFTEN OVERLOOKED; AND ON CONDITIONS WHICH MAY SIMULATE ADENOID DISEASE.²

DR. G. A. LELAND : It is noticeable in the literature lately that whenever any one brings up the subject of adenoid vegetations before a society, he makes some excuse for introducing so trite a subject. I do not think the paper to which we have listened to-night needs to be criticised because it was written on a trite subject, but commended because it has brought out some valuable points. It is evidence of progress that the profession recognizes more and more that adenoid vegetations do not confine themselves in their exhibition of symptoms to simply keeping the mouth open,

³ See page 365 of the Journal.

to producing the characteristic facies, but that there are various other manifestations of them even where this classic symptom is left out. Dr. Farlow has mentioned a number of such symptoms, but only lightly referred to diseases of the ear. In my experience it seems to be notable that some affections of the ear, especially those having the symptoms of earache and tinnitus aurium, are the most important ones which can be attributed to the presence of these growths; and it is the first variety which he mentioned, the catarrhal adenoid so called, the diffuse adenoid spread evenly over the naso-pharyngeal space without any swelling or tumefaction, to which often may be attributed these symptoms referable to the ears which are usually thought to have any other cause than adenoid vegetations. When Dr. Hooper read his paper before



FIG. 2.

the Suffolk District Society, in 1886 I think, Dr. Blake showed that if the fossæ of Rosenmüller were obstructed by naso-pharyngeal lymphatic hyperplasia or otherwise, the Eustachian tubes could not have their proper movements, and therefore the ear was not well ventilated nor drained; hence we have the symptoms directly caused by closure of these tubes, namely, tinnitus and earache, followed frequently by inflammatory conditions with rupture of the membrana tympani.

I stated last summer before the Massachusetts Medical Society, and I would like to say it again, that I do not believe, with the exception of traumatism, a child under six years of age ever has earache without adenoids. I do not think it has occurred in my experience to find such a case of earache without the presence of this obstructive growth or folds of mucous membrane thickened by it in the sides of the nasopharynx; and certainly many cases of persistent earache are kept up by this same factor, by this same obstruction to the drainage and ventilation of the tympanum. It has been very interesting to me to observe cases of pulsating tinnitus. Congestion of the adenoid mass in the fossa of Rosenmüller and vicinity, the sound of which is telephoned to the ear by the cartilage of the

tube, keeps up this pulsating, hammering tinnitus from which some patients so often suffer, which symptom is usually referred to some obscure lesion, brain tumor or something of the sort. I have often found if I can get my digital curette into that fossa of Rosenmüller and scrape it clean that this tinnitus usually ceases immediately. It may come back again, very frequently comes back temporarily from congestion of the space after the slight operation; but if this fossa can be kept clear the pulsations disappear.

There is one common factor which Dr. Farlow has not referred to as productive of mouth-breathing, and that is habit. We find so many mothers who forget to tell their children to keep their mouth shut and we find adults who have never breathed through the nose because they never contracted the habit of doing so. A little while ago a man of seventy-five years of age came to me complaining of catarrh of nose and nasopharynx, with the nose perfectly free, with nothing but congestion of the turbinates from disuse, and dryness of the pharynx from unprepared air; and the only reason for breathing through the mouth was habit.

The symptoms mentioned by the reader, namely, deformities of the teeth and jaws, and small, undeveloped noses, are the result of this habit of mouth-breathing as much as of physical obstruction. I remember hearing the late Professor Monroe speak before a teachers' convention upwards of thirty years ago, when he said if the nose were only habitually used the spaces would grow larger. That impressed me very much; and I think we may see from day to day many people who never use their noses for respiration, and therefore haven't any proper nose to use, only two very small useless holes in the face; just as fishes in Mammoth Cave have no eyes because they live in darkness and do not need them.

There is one more observation which I would like to make on this catarrhal adenoid, so called, and that is we occasionally see what seems to be nothing but a diffuse spreading out of adenoid vegetations over the whole naso-pharynx in patients of eighteen or twenty or even much older, and we are surprised that they do not disappear if we remove them with the curette but immediately recur. I have found that this state is not always due to simple lymphatic hyperplasia, but is specific. A few years ago a young lady with muffled voice and a discharging ear was referred to me by an aurist because the naso-pharynx would not remain free after he had removed the adenoids. The naso-pharyngeal surface was very much thickened, apparently a case of hyperplastic lymphatic tissue in that space. I operated on her in a most thorough manner with but indifferent success. I had occasion about that time to treat this young lady's older sister for severe persistent headache apparently referable to the nose, but which defied the usual treatment directed to the intra-nasal structures; and afterwards appeared to present the characteristics of ordinary specific headache. Relief followed almost immediately the exhibition of the iodides of potash and mercury. Thinking the taint might be in the family, I gave the sister the same treatment, and was very much gratified to see the lymphatic hyperplasia diminish and the ear stop running. This case is not unique. Many a patient presenting the symptoms alluded to needs only iodide of potash to remove a taint which has been forgotten, or which is hereditary, as in the case of these sisters it must have been.

Dr. Farlow speaks of deformities or excessive size of the teeth causing mouth-breathing. While this is perhaps true in a few cases, it is much more common and plausible to find that mouth-breathing is the cause rather than the result of deformities of the teeth and of the jaw. From this point of view it is evident that with the mouth open the upper jaw is pressed upon and held down by the weight of the upper lip and of the cheeks, and, in addition, not having the under jaw in its proper place where the teeth should close inside of those of the upper jaw, the latter are not pressed outwards and kept up to their normal rate of growth. Hence if we look for it, I am sure we shall very frequently find an under jaw corresponding to the age of the patient with an upper jaw considerably smaller.

A few years ago a boy was referred to me whose upper jaw fitted into the lower one unevenly to such a degree that the teeth upon it, had they been present, would not have touched any of the teeth of the lower jaw; but in this case the teeth had been all removed, since not having their proper support and their proper resistance nutrition had been lost and they had decayed. In this case it was evident that the lower jaw was twenty-two years old, the age of the patient, and that the upper one was about twelve years old. And it was asserted by the patient and his parent that for the last several years the under teeth had struck wholly inside of the upper ones.

While not exactly germane to the subject, I would like to say a word as to the absence of nasal respiration, whether from obstruction or habit, having much to do with the recurrence of adenoid vegetations. The late Dr. Wilhelm Meyer, of Copenhagen, reported 102 cases in his first list, and a number of years afterwards said that in this list there were 13 recurrences. It seems to me that this proportion is much larger than we now have, the impression being that three to four per cent. of recurrences is about the proper number. As far as I can learn from observation, recurrence seems to be directly attributable to non-respiration through the nose after operation: so that the causes which doubtless contributed to the occurrence of the hyperplastic growths continue to be a factor in their recurrence. Hence, I make it an essential point to see that the nose is free and that respiration is properly performed before the operation for the removal of adenoids is undertaken.

This was brought to my attention in a striking manner a few years ago when a young man of about ten or twelve years of age was referred to me for persistent chronic cold. I found extreme occlusion of the upper air-passages. The naso-pharynx was as full of adenoid vegetations as I ever saw one, so that the mass pressed heavily upon the velum palati. The nose was also tightly closed by engorgement of the turbinates, and the lumen entirely obliterated. It occurred to me that to remove the adenoid vegetations from the naso-pharynx would not restore respiration through the upper-air passages, and that therefore the nose demanded the first attention, after which the operation of adenectomy would have its usual brilliant result. The intra-nasal engorgement was reduced by gentle cauterization with acids until it was perfectly free, and a number of weeks was allowed for complete recovery from the intra-nasal treatment before the time for operation was appointed, when I was much astonished to find the naso-pharynx perfectly free, the adenoids having completely disappeared. The hearing which had

been somewhat diminished from occlusion of the tubes had been restored, and there was nothing to be operated upon. What in this case was accomplished by accident, as it were, I have been enabled to accomplish since by intention. Hence, I have learned to consider it of extreme importance to get rid of intra-nasal obstruction first, which will be of great assistance in the treatment of adenoids whether by removing them or allowing them to disappear when brought under conditions of normal respiration. I have thought that perhaps this may be the reason that some of us have had recurrences for which we could not account, and I am sure I can call to mind cases of recurrence where the only reason has been that the parents have not insisted upon the establishment of the habit of nasal respiration after the operation has been successfully performed.

As I said in the beginning I wish to give my hearty commendation to the reader for his paper which has enabled us to bring up this subject for renewed discussion.

DR. A. COOLIDGE: I think this paper of Dr. Farlow's is very timely. It draws attention to mistakes made by not fully recognizing the symptoms which may be due to adenoids. As we see more children's post-nasal spaces, we see that a large number have a certain amount of hypertrophy; and the question of advising operation comes not so much from the existence of something which can be demonstrated as adenoid tissue, but whether any symptoms arise from it. The writer has shown that mouth-breathing is not necessarily the result of adenoid disease. Any obstruction in the respiratory tract between the pharynx and the nostril may produce mouth-breathing.

I cannot add anything to Dr. Farlow's list, except perhaps to draw especial attention to one or two conditions which occur to me as causing obstruction in children without adenoid hypertrophy. Many children do not know how to blow the nose; muco-purulent secretion collects, and there is nasal stoppage in consequence. As Dr. Leland says, this condition will sometimes cause adenoid hypertrophy which did not exist before. The scabbing of the anterior part of the nose in young children is a very common cause of mouth-breathing. Another cause, which is not quite so common, is idiocy. An idiotic child has not proper control of the soft palate and cannot get it down out of the way of the post-nasal space.

A diagnosis of adenoids should not be made from obstruction alone, but also, as the writer has said, the absence of obstruction does not rule out their presence. The symptoms of non-obstructing adenoid tissue opens a difficult subject. Dyspepsia, nervousness, anemia, frequent colds, thick voice, post-nasal catarrh are sometimes relieved by removing glandular tissue from the vault; but we cannot say that the patient is necessarily going to get well as soon as that adenoid is removed. It is well to remove it, but we should not give too favorable a prognosis, otherwise we shall have the discomfort of having the patient after operation no better than before. The same thing is true in operating in adenoids where we are not sure that the adenoid is the cause of the obstruction. The more adenoid tissue we get out the better our prognosis may be.

There is one condition of interest in connection with the remnants of glandular tissue in the naso-pharynx, and that is acute tonsillitis. A case of acute tonsillitis often shows constitutional disturbance out of all proportion to the local disturbance of the faucial tonsils.

All of the glandular tissue of the upper respiratory tract, the faucial tonsils, the pharyngeal tonsil, the small glands of the pharyngeal mucous membrane, and even the lingual tonsil may be involved. It is reasonable to infer that a large amount of glandular tissue in the post-nasal space will invite a more severe invasion of the disease.

In regard to the small size of the nose. This is a very common cause of periodic nasal obstruction. I think, as Dr. Leland has said, that in most of these cases we can trace the cause to lack of good nasal respiration in the past, during the period of development; and for that reason I have always considered in the adult that a too narrow nasal cavity pointed very strongly to the probable existence of mouth-breathing in former years. One of the results of continued mouth-breathing is the narrowing of the upper jaw and with that the narrowing of the nasal cavities, so that the space between the turbinates and the septum is narrow and easily becomes occluded by the slightest swelling of the turbinates.

DR. DEBLOIS: The long history of ills that seem to follow the presence of adenoids reminds one of the histories you find in the ordinary newspaper on the evils of some much-talked-of disease. Everything from headache to gout is caused by this one malady. Of course a great many troubles do follow the presence of adenoids, or more properly speaking, the habit of mouth-breathing. Almost all of this subject was covered in my article on "Mouth-Breathing," published in the Boston City Hospital Reports for 1896. But there is a little point about the teeth which I do not think Dr. Farlow quite brought out, and on which I differ from Dr. Leland, and that is, the matter of cause and effect. I believe that the mouth-breathing is largely caused by the defective placement of the teeth, and their position is not caused by the presence of post-nasal obstruction. I would read the following from the City Hospital Report of 1896:

In these cases (namely, undershot jaw) the closure of the lips is impossible. I have tried over and over again to force patients to keep their lips closed. After a short time the orbicularis oris muscle becomes tired and the upper lip will draw back and they will breathe through the mouth, although the nares may be perfectly patent. Dr. Leland seems to think that the presence of the adenoids in the respiratory tract will produce this deformity of the teeth, but in that case why should not all those who have had adenoids all through early life have the deformity and why should we not find more cases of undershot jaw than we do?

DR. LANGMAID: Although so little is known now in addition to what Meyer told us a good many years ago, such a paper and such discussion is of the greatest value to the community. I should draw from my experience that the medical community is pretty well alive now to the existence, the widespread existence of adenoma, and, in the absence of any explanation for certain phenomena, generally refers the case to the specialist for examination. I say that is my experience. It is very fortunate that it is so. Better see a dozen cases referred to the specialist where there is no adenomatous growth than to allow one to go unnoticed. Dr. Farlow has spoken of symptoms which might be caused by naso-pharyngeal growths but which are really due to other causes. One or two of these symptoms have been omitted. They are curiosities and are not common. One is extreme narrowing of the poste-

rior coanæ. The remarks with regard to the narrowing of the nostril have referred to the narrowing of the anterior nostril, but occasionally one will find that the posterior coanæ are not at all in proportion to the anterior openings. I remember a case where we supposed we had an adenoma to remove and it was found to be a bony cyst which the finger entered and that was due to congenital syphilis. Syphilis has been spoken of by Dr. Leland, as I understand, secondarily as a cause; and I believe with him it is often mistaken for true adenoma. But enough cases of congenital syphilis have now been reported to show that it exists in the naso-pharynx before it is discovered anywhere else, even in the absence of the Hutchinson teeth. This case which I referred to I saw go through the stages of tertiary syphilis with loss of bones of the nose. I think it was Dr. Leland who said that one must not expect or prophesy too much with regard to the breathing after the removal of adenomatous growths on account of the small size or inaction of the nares. Wherever the child is large enough to treat itself or to allow itself to be treated by parents or attendants, it is always best to pay special attention to this, because it avoids the dissatisfaction which has been spoken of.

Among the phenomena which may be referred to the presence of adenoma that of imperfect speech is not unusual. Dr. Goodale and myself saw a case only a few weeks ago where the child had imperfect speech, the kind of imperfect speech to which I referred some weeks ago here where the child had never learned to talk from lack of development. It was thought, and very properly, by the attending physician that that might be owing to hypertrophy of lymphoid tissue in the naso-pharynx, but there was none. Better make the mistake of having an examination made than to allow the case to go unexamined. Many children exhibiting such phenomena demand examination, many demand operation; possibly some do not. I believe myself, and I think it to be the sense of those who do operations, that the mistake had better be on the side of operating whenever symptoms point to obstruction in the naso-pharynx.

There is one interesting point, and that is with regard to the influence of a small mass of adenoma producing repeated colds. The colds will be repeated until that mass is removed. That I have seen more than once. It would seem to act as the hypertrophied tonsil does. Owing to the atmospheric influences perhaps it swells; a large amount of secretion takes place, and the whole upper respiratory tract is affected by it. It seems to me that, with regard to these growths, one had better be rather dogmatic, and where they are seen or suspected they should be removed.

It is almost impossible to add anything new to what has been written and said. I think Dr. Farlow's paper is timely and interesting, and the discussion which has followed has called our attention to new points.

DR. BLODGETT: Attention has been called to the deformity or malformation of the upper jaw as a symptom of, or cause of, mouth-breathing. There is one condition with which I think this has occasionally some relation which I believe has not been mentioned, but which I have noticed sufficiently often to make me believe it is worthy of attention; that is, the enlargement of the palatal arch, with advancement of the alveolar process and spreading of the teeth, which I believe is sometimes due to the faulty habit of thumb-sucking in infancy. How far this may correspond

with the experience of others I do not know, but I believe attention has already been called to it in relation to mouth-breathing. The faulty habit of allowing children to constantly distend the upper jaw by sucking the thumbs or the fist is a condition to which the attention of nurses or mothers should be directed in order to prevent as far as may be a subsequent obstruction of nasal breathing from deformity of the nasal passages or undue distention of the alveolar processes with advancement of the dental arch and impaired closure of the lips, from which later in life the patient may not be able to free himself. I have seen numerous cases in which I could detect no cause for mouth-breathing except the inability to close the lips due to extreme advancement of the upper teeth from this habit. It seems to me it would certainly remove one cause of mouth-breathing and nasal obstruction if attention should be called to this faulty habit at a time when it might be corrected.

DR. J. W. FARLOW: In order to teach children to breathe through the nose and expand the chest, I am in the habit of telling parents, after an adenoid operation, to measure the child's chest, inflated and empty, and write the measurements on a piece of paper with the date. The parent is then to see to it that the child practises deep nasal inspiration with closed mouth for several minutes twice a day. At the end of a month the chest is measured again and the child with his record is brought to me. In this way the parents and child are interested in something definite and strive to make as good a record as possible, and it is sometimes surprising to see the progress made. On November 15th I operated on a child out of town. She was brought to me a few days ago, and I found that she had gained two inches around the chest.

DR. PAUL THORNDIKE and DR. J. B. OGDEN presented a paper entitled

REMARKS ON CYSTINURIA, WITH REPORT OF A CASE OF CYSTIN CALCULUS IN THE MALE BLADDER.¹

DR. E. S. WOOD: There is very little to be added to what Dr. Ogden has said in regard to the subject of cystinuria which is not already very old. One point is with reference to the rarity of the condition. I have seen perhaps twenty cases of cystinuria only, in my experience of more than twenty years in the examination of a great many specimens of urine; and during that period of time perhaps, as is usual with other rarities in medical cases, half a dozen occurred in one year. Cystinuria is not always a constant condition. In many cases it has been found to be intermittent, and a patient may have an intermission of varying periods of time, the cystin being found in the urine continuously perhaps a year or more and then disappearing to reappear at some uncertain period afterwards; but, on the other hand, there are a good many cases which are not intermittent, and in which cystin is constantly present and can always be found.

One point about cystin, which shows its connection with sulphuretted hydrogen, is that it contains 26 per cent. of its weight of sulphur in its molecular composition, and that explains the formation of sulphuretted hydrogen wherever decomposition of the cystin takes place in whatever fluid it happens to be contained.

As Dr. Ogden has mentioned, there is no disturbance of the general health due to this condition of things, that is, the fact that cystin is formed in the

¹ See page 367 of the Journal.

person's economy produces absolutely no symptom whatever unless it happens to separate within the urinary passages in crystalline form, and in that case it produces the local symptoms of mechanical irritation, focal irritation of the kidneys or of the pelvis of the kidneys or the lower membranes.

In one case which I reported to this Society a number of years ago, the patient, who was a roofer by occupation, only knew that he had colic, so that sometimes he was obliged to bend over the back of a chair to quiet the pain. The first thing that called attention to his urinary passages being, that, when micturating from one roof to another below, a companion on the lower roof asked why he was throwing those pebbles down. Picking up some they proved to be cystin concretions about the size of half a pea. I had a phial full, which the patient gave me, and which were all composed of pure cystin.

BOSTON MEDICO-PSYCHOLOGICAL SOCIETY.

H. C. BALDWIN, M.D., SECRETARY.

REGULAR Meeting, Thursday, December 16, 1897,
DR. EDWARD COWLES in the chair.

DR. WALTER CHANNING read a paper entitled
MEDICAL EXPERT TESTIMONY IN THE KELLEY MURDER TRIAL.¹

DR. C. P. BANCROFT, of Concord, N. H.: This case was very interesting to me, especially as the opportunity was afforded me of guiding both sides in the selection of their experts. Fortunately the prosecuting attorney, Mr. Nason, was eminently fair-minded and was willing to be advised in the choice of his experts.

My first three visits were with Kelley alone. The others did not have the opportunity to see the prisoner alone. Although in some respects the private interviews were more satisfactory, still the result of both private and more public interviews was practically the same. I cannot say that I saw any particular difference in Kelley examined alone privately by myself at different times, and Kelley examined before all the others. I was pretty thoroughly convinced that Kelley was not acting any part, that he was simply himself.

The termination of the case was most satisfactory to all of the experts. For once expert witnesses were brought into proper relations with the court and the case. Instead of perplexing the case, it did seem as though we had been of material assistance to the court, and that our evidence threw much light upon what would otherwise have been quite puzzling. The directness with which justice was obtained in this case was undoubtedly largely due to Chief Justice Doe's medico-legal decisions in the past. His rulings are models of brevity and clearness. The following quotations from the case of *State vs. Jones* are worth noting and were embodied by Mr. Ryan in his opening. Judge Doe delivered these opinions at the June term, 1871:

"The verdict should be 'not guilty by reason of insanity' if the killing was the offspring or product of mental disease in the defendant."

"Neither delusion, nor knowledge of right or wrong, nor design or cunning in planning and executing the killing and escaping or avoiding detection, nor ability to recognize acquaintances, or to labor, or transact business, or manage affairs, is, as a matter of fact, a test of mental disease, but

all symptoms and all tests of mental disease are purely matters of fact, to be determined by the jury."

"Insanity is mental disease — disease of the mind. An act produced by mental disease is not a crime."

"The defendant is to be acquitted on the ground of insanity, unless the jury are satisfied beyond a reasonable doubt that the killing was not produced by mental disease."

Judge Doe's definition of insanity was broad and inclusive, and had an important bearing in the Kelley case. He called insanity mental unsoundness. Instead of attempting a long involved definition of the term insanity, which we all know is impracticable, he recognized the word as generic rather than specific. Insanity is a symptom rather than a special form of mental disease. In this light Kelley was regarded as insane only as he manifested one phase of mental unsoundness, namely, imbecility or arrested development, the result of traumatism.

The fact that medical experts were arrayed against each other, and were not prevented by counsel on either side from coming together in mutual conference, and that they were individually called upon for an unbiased expression of their opinion is certainly interesting, and may afford some precedent for the guidance of jurists and medico-legal experts in the future.

Perhaps I may have felt a little more strongly concerning Kelley's delusion than the other experts, as a result of my more frequent and extended visits upon him while in the jail. At all events I had come to think that Kelley really did believe in his delusion of the devil. I have seen an interesting letter which he has written since his commitment to prison in which he asserts his guilt, protests against the charge of insanity and imbecility, and insists that great injustice was done in that he was not hung. He concludes his letter by saying if the people of New Hampshire are satisfied with that sort of justice he will be.

DR. W. A. GORTON, of Providence, R. I.: It seems rather superfluous for me to add anything to what the paper of Dr. Channing and the remarks of Dr. Bancroft have already placed before you. I am exceedingly gratified to bear testimony to the direct way in which the facts of this case, or the facts as they seemed to us, were brought to the notice of the court, and I wish more especially to bear testimony to the breadth of mind shown by the Attorney-General and the County Solicitor of Strafford County. I think it is most unusual to find in lawyers such a complete disinterestedness as was displayed by these gentlemen. They were under the greatest stress, and had every incentive to carry the case to the bitter end, in view of the feeling of the public toward the prisoner; but so great was their innate honesty, as it seems to me, that when they found in spite of their previously formed opinion of the prisoner at the bar that he was a very strangely compounded individual they were perfectly willing to allow a full and free consultation of the experts summoned by themselves and by the defence and then to allow them to testify as they did in favor of the prisoner. It would be exceedingly gratifying if that spirit were more widely spread among the legal profession than my observation hitherto has led me to suppose it to be.

Notwithstanding the view we all took of this case, the point of irresponsibility perhaps remains without definite settlement. I thought the man was pathological to a degree that rendered him irresponsible to the extent to which we testified at the time. He did not

¹ See page 366 of the Journal.

present to me the picture of a purely criminal degenerate. I have seen a good many such, and he lacked many things which that class have, and had a great many things which those people do not have. The fact of his injury, his subsequent epilepsy, my belief that in certain important respects his mind was left after the receipt of the injury pretty nearly in the same condition that it was when he received it, decided my opinion. That is to say, he was injured at the time when he possessed all the predatory instincts of early childhood—stealing, running away, etc., without any real moral perception; a child at the age of four will steal anything desirable in the way of sweets, etc., will deny the theft when told about it, but will, when faced with evidence of guilt, admit it, promise reformation and in a brief time repeat the same or similar acts. This mental state may be continued for a considerable period; but when the general, all-round mental development reaches a certain state these traits disappear. With this boy there seemed to be a continuation of this mental state, a lack of development amounting to moral imbecility, so that he seems to have about the same sort of appreciation of the obliquity of his actions as certain children of seven or eight or younger. I was convinced that the crime he committed presented itself to his mind in no more serious light than the various peccadillos he had been committing during the rest of his life; he was about as sorry for stealing an apple from the village grocer as for committing this most atrocious crime. He regarded himself with a great deal more self-respect in another way, for having committed the murder than for having committed the theft of the apple because the latter act did not bring him into notoriety and the commission of the murder did. When he was brought before the court for preliminary arraignment he expected to be the occasion of a great ceremony. The sheriff had planned the matter so that when they reached the court-room there was almost nobody there, and he was mortified and grieved about what he considered public neglect.

I do not know exactly whether his belief in the devil, as he expressed it, could be regarded as rising to the dignity of an actual delusion. Sometimes I thought it did; and at other times it seemed a sort of reminiscence of some of his early religious teachings rather than having the dominating character at any time in his consciousness that a thoroughly well-systematized delusion of that character would possess. He related to me, without any suggestion on my part, in the presence of Dr. Bancroft at my first interview, in a striking way an experience he said he had with the devil in the jail. The devil did not enter the room so that he saw him, and did not speak aloud to him, but, he declared, so influenced him that he said he knew it was the devil. He said the devil told him that he could tear off the selvage of his blankets and make a rope with which to hang himself to the bars of the cell. He said he thought the devil had two purposes in view: first, to cheat the law, and next to preserve his power over him into the next world; that the devil had some fear apparently that should he survive the term of his compact with him he might through true penitence escape and go to heaven; whereas if he killed himself before the expiration of that time his hold on him would not be lost.

The question whether or not the medical expert should testify as to the degree of responsibility I think

is very important. I agree with Dr. Channing that we have the right to express our opinion, but I think we were placed in a most fortunate position in New Hampshire, in that after all the final decision of the case rested upon the court and not upon our statement or opinion. Of course, it is an exceedingly difficult matter to fix the degree of responsibility in a person not typically insane in some form or other, but I believe the expert may safely be allowed to state in general terms whether a person alleged to be insane is of full or of limited responsibility, together with the reasons for such opinion.

DR. FISHER: This is the second case in my experience where an insane man has committed homicide for the sake of money. The other case was Green, the Malden murderer. It is exceedingly unusual for any insane person to commit crime resulting in the securing of large sums of money, robbing of banks, for instance. Paranoiacs never commit crimes of that sort, usually acting under the influence of delusion or hallucination. In this case the fact of epilepsy was concealed from the public so that we had nothing to explain the case as it was very well explained afterwards by the discovery of that fact. In a case in Vermont where I am making an examination of a woman who has committed a homicide, the same practice seems to prevail of examining the prisoner in the presence of the other experts and of the counsel, and the last time a reporter was present and the interview was taken down stenographically. The experts for the defence have had unlimited access to the prisoner; but the experts for the State are hampered in that absurd way, and whenever a question is asked which has any significance and is connected directly with the events of the crime the counsel for the defence will interpose objection and say that question cannot be answered, so that the examination is more or less of a farce.

DR. P. C. KNAPP: The epilepsy in the earlier life of the patient, with the manifestation later of the distinct moral imbecility, calls to mind the theory which has been so ingeniously urged by Lombroso, that the degenerate criminal is merely a case of moral insanity and that moral insanity is a manifestation of epilepsy. I suppose very few men would accept Lombroso's theory as a finality by any means, but certainly this has rather an interesting bearing in that respect. It has seemed to me that in this case, as in other cases, the State of New Hampshire was very much superior to some other States in its dealing with expert testimony in medico-legal matters. Certainly, in view of the fiasco that a committee of this Society met with last winter in conferring with the bar association with reference to expert testimony in this State, the action of the bar and bench of New Hampshire is most earnestly to be commended to the bar and bench of Massachusetts.

The question of limited responsibility is one of very distinct interest. This case may well be contrasted with the case I had occasion to cite at one of the meetings of this Society some time ago, namely, the Shortis case, which was tried in Montreal a few years ago, where the counsel and the court went back to the most absolutely benighted medieval opinions of the English common law as to the ability to distinguish between right and wrong, and a man most manifestly insane from start to finish was in consequence hanged. I suppose such an idea of limited responsibility as was presented before the New Hampshire court, if brought

before the court in Montreal in that case, would have resulted in immediate paralysis of judge, jury and counsel. But certainly such a method of dealing with expert testimony as is shown in this case is most to be commended, and the harmony which was manifest shows that if the court would limit expert testimony to men who were experts, instead of letting everybody testify as an expert whether they knew anything about the matter or not, we could have perfectly harmonious, respectable and trustworthy expert testimony; but in Massachusetts, and still more markedly in New York and Illinois (as seen in the Luetgert case), expert testimony is sometimes apparently testimony given by men who know nothing of the subject.

JABEZ FOX: It is interesting to me to notice how fully the respect which the bar and bench have for experts and expert testimony is reciprocated. I agree with Dr. Channing as to the absurdity of the hypothetical question. It is rather curious to notice how that is defended. It is said that if you ask an expert to give his opinion upon the evidence, you are putting the expert in the place of the jury; you are asking the expert to decide the facts. In order to avoid this we put upon the jury this task: They must remember the hypothetical question, which may be twenty pages long; they must remember the answer to the question; must remember all the testimony, and decide how far the testimony supports the hypothetical question; and if they find it does not support the hypothetical question, they must decide what the answer should be upon the true facts in the case.

DR. E. COWLES: I do not think I can add anything to the presentation of the case as it has been made. One point, however, has not been brought out, perhaps a minor one, which gave me an impression of the pathological condition of this prisoner's mind, with reference to the question of his having a delusion with regard to the devil. I think his idea of having seen the devil, and what initiated the conception, is perfectly well accounted for by the probability of his having had a hallucination of sight, of seeing the devil, in his early attacks of epilepsy. There were several things in the evidence that pointed in that direction, that he had memory of having seen this vision. He did not build up the delusion farther than to attach to it the ordinary story of compacts with the devil of which he may have heard, and although he went so far as that in constructing what could be called a systematized delusion, still it was not operative with him through all the years of his life until after the time of the murder. He did not steal on account of his arrangements with the devil, but stole upon his impulses to do so; all such acts were what he would have done had he had no such idea of the devil. On occasions he referred to that notion as an explanation, but it did not seem to concern him very much in his ordinary way of life; this delusional idea was not what influenced him at the time he committed the thefts. All these things, as he said, were quite independent of that influence. It was a theoretical explanation which he sometimes resorted to, of his inability to refrain from certain acts. After he got into jail, and began to think the matter over, and was asked questions about it, then the subject being prominent in his mind he did think out, and systematize to some extent, this notion, not really to the extent of its arriving at the dignity of delusion, but still carrying it much farther and systematizing this notion in a more formulated way than he ever had before.

But it seemed to me that a memory of the hallucination, and the slight effect it had upon his mind, was quite natural as the result of a temporary pathological state, but that his mind worked in a way to find motives that accounted for the freedom of his conduct from the controlling influences of delusional ideas. That harmonizes, it seems to me, with the fact that it was not like an insane mind not to act upon his delusions.

DR. CHANNING: I have nothing to add to the discussion. One or two points Dr. Bancroft referred to I did cover with my paper, but it was so long that I skipped them. For instance, in reference to Kelley's first entrance into the bank and what took place there and what he intended to do, I have stated in the body of the paper, but I left it out in the reading as not being necessary to the story as I endeavored to detail it to-night.

Recent Literature.

Diseases of the Stomach. By JOHN C. HEMMETER, M.D., Ph.D., Philadelphia: P. Blakiston, Son & Co. 1897.

In this work the author has designed a complete text-book of the diseases of the stomach.

The book is divided into three parts.

Part I deals with the anatomy of the digestive tract, the physiology of digestion, and the methods of examination and diagnosis employed in the study of the physiological and pathological conditions of the stomach.

The introductory chapters are brief outlines of the prevailing conceptions upon the anatomy and histology of the digestive tract. They contain the latest knowledge upon the subject, including the very recent work of Mall and of Bensley.

The consideration of the Physiology of Digestion is full and detailed. Much of the work shows evidence of the personal experience of the author in the determination or confirmation of the results cited. The knowledge in regard to some of the functions of digestion, as, for instance, the motility of the stomach, has received important additions from the original work of the author. The presentation of the subject is, however, open to serious criticism. There is a lack of scientific and critical judgment in the determination of the accuracy or value of the facts presented, and in the development of the conclusions derived from the association of these facts, which detracts seriously from the value of the whole presentation. It is not always possible for the reader to separate the facts and conclusions which are the result of investigations scientific in each step, from those which rest upon doubtful foundations or are theoretical.

The evidence in regard to the motility of the stomach wall and of the movements of the food, obtained by the use of the author's method of introducing an intra-gastric bag connected with a manometer and kymographion, is of great interest. It may be questioned whether the movements of the stomach under stimulation from the presence of the intra-gastric bag are similar in character to the normal movements. The results obtained are, however, in keeping with those of Moritz, and with more recent observations upon the subject obtained by the use of the x-rays without such extraordinary stimulation.

The author in retaining the theory of the absorption of fat in emulsion of natural fats is completely out of touch with the results obtained in recent investigations of this subject. The general evidence of these investigations points against this hypothesis and in favor of the theory of absorption of fat in the form of fatty acids and soaps. We do not agree with the author in regard to several of his statements, as, for instance, that lactic acid is present in amounts which can be determined by the ordinary tests, in the early stages after the Ewald meal, or that fatty acids do not occur in the normal gastric digestion, or that the test for erethrodextrin in the gastric contents one hour after an Ewald meal indicates an abnormal condition of secretion of hydrochloric acid.

The consideration of the general methods of clinical examination of the stomach is thoroughly adequate, and the personal suggestions of the author in regard to their application are very useful.

The method of determining the size of the stomach, by the intra-gastric bag connected with graduated water bottles, suggested by the author, commends itself to us.

The chapter upon the indications obtained in the examination of expressed fragments of the gastric mucosa deserves attention. We doubt whether pathologists would agree to Dr. Hemmeters' claims in regard to the value of this means of diagnosis. The subject is, however, worth more consideration than is accorded it at present.

The second division of the book contains a consideration of the general means and methods of therapy in diseases of the stomach. The chapters upon dietetics are full and up to date. The author rightly emphasizes the importance of this branch of the subject. The scientific application of the results of investigation in metabolism and in the physiology of digestion to the doctrine of dieting is carefully outlined. The adaptation of this knowledge in the diet tables and in the author's suggestions in regard to treatment of special conditions is fragmentary, perhaps unavoidably. The work would have been more useful if it had been more condensed and more direct.

The chapter upon the use of alcohol is interesting, as it brings the subject up to date, including the results of the recent investigations of Chittenden.

The chapter upon the use of mineral waters in disease of the stomach is of special value, since this is the first of the text-books upon the stomach which includes a consideration of the relative usefulness of the American waters.

The author rightly argues against the use of pepsin preparations in disorders of digestion. We should have applied the same judgment to pancreatin. The author, however, claims scientific evidence of distinct benefit from the use of this preparation in conditions of atrophy of the gastric mucosa.

In the third division of his work, the consideration of the special diseases and diseased conditions of the stomach is taken up. In the scheme of classification and the consideration of the special characteristics of the separate diseases, the author follows thoroughly intelligible principles. The conditions are differentiated, as far as possible with reference to the special disability of function, or the special organic lesion, which is most apparent and fundamental in the condition. In the consideration of the pathology, symptom-

ology and treatment of the separate diseased conditions, the author gives evidence of an extensive experience in the care of these conditions, and of a thorough familiarity with the literature of stomach disease, but not throughout, it must be admitted, of a profound knowledge of the subject.

The considerations upon the treatment are all excellent, those upon the pathology and intimate character of the diseases not as good. These latter considerations do not come so directly from the experience and induction of the author. The principle of treatment advised throughout is the adaptation of the diet to the existing pathological conditions. The indications which are always foremost are rest of the organ or function diseased, and proper nourishment of the organism. The practice of lavage as an aid to the accomplishment of these ends is strongly recommended. The use of drugs is kept well in the secondary position which it should occupy. In no text-book on the subject is this thoroughly scientific scheme of treatment more emphasized. The author cannot be too highly commended for its advocacy and practice.

In regard to the special characteristics of the separate diseases, we differ with several of the statements of the author. The statements in regard to the occurrence of lactic acid in the gastric contents, particularly that which implies that the presence of this substance may be an early symptom of carcinoma of the stomach (page 538), are calculated to give an incorrect impression. The formation of lactic acid is not, as the author implies, consequent upon stasis of contents alone (page 529), but upon a combination of this condition with an absence of HCl secretion and of diminution of pepsin. That is, upon a combination of stasis with atrophy of the mucosa. Such a condition does not occur in an early but in a late stage of cancer of the stomach.¹ We cannot agree with the use of the method of estimation of the HCl deficit for the determination of the amount of combined HCl present, as advised by the author in cases of cancer with stenosis (page 516). Where stasis of contents, or morbid exfoliation of tissue or bleeding occur, as in these conditions, the method is absolutely unreliable.²

It is not altogether easy to give a concise critical judgment of the value of Dr. Hemmeters' book. In a text-book on a special subject we expect and occasionally obtain a work in which the author knows from personal investigation and profound experience the whole ground over which he carries us. Dr. Hemmeters' book is not of this class. It is conceded, however, that a book consisting of a collection of the knowledge upon a subject gathered from the results of others' work, arranged and corrected by the author's judgment, and sanctioned and amplified by his experience, may add much to our store of knowledge upon the subject and completely justify its conception and publication as a text-book. Most text-books belong to this class, though many of them fulfil its requisites but poorly.

The collection of facts contained in Dr. Hemmeters' book is very complete. The review of the literature of the subject is exhaustive. Evidence of extensive experience in the use of the methods of diagnosis, and in the care of the diseases considered is present throughout. The book has many original suggestions; partic-

¹ Hammerschlag: *Arch. f. Verdauung's Krankheiten*.
² Ehrmann: *Berl. klin. Woch.*, December 20, 1897.

ularly in regard to treatment. In the possession of these properties the book has undoubted value. This possession is not, however, the first essential for the award of high rank in a book of this kind. This essential is the evidence of a correct scientific judgment and critical faculty in the determination of the value of the facts, and the induction of scientific conclusions from their association. This property is frequently lacking in Dr. Hemmeter's work, and as a result its value is much contracted.

As the most extensive work upon diseases of the stomach in the English language, the book will undoubtedly do much to disseminate the knowledge upon this subject in America, where such dissemination is much needed.

Diseases of Women. By J. C. WEBSTER, B.A., M.D. Edin., F.R.C.P. Edin. Pp. 688, 241 figures. New York: The Macmillan Company. 1898.

This book is distinguished among its competitors in gynecology by the extreme fulness and lucidity of its theoretical portions. The chapters on anatomy are fully equal to the reputation of its distinguished author and are sufficiently brief to be readily followed. Pathology is clearly and interestingly treated throughout the book. The directions for diagnosis and treatment are thoroughly up to date, concise and clear.

Annual and Analytical Cyclopedia of Practical Medicine. By CHARLES E. SAJOURS, M.D., and one hundred Associate Editors, assisted by Corresponding Editors, Collaborators and Correspondents. Illustrated with chromo-lithographs, engravings and maps. Volume I. Philadelphia: The F. A. Davis Co. 1898.

The plan of this new medical annual and encyclopaedia differs from the old Sajours' Annual in that it includes not only the literature of the previous year on the subjects treated, but presents a review of the literature of the subject for the past ten years, and thus presents, both to the special student and the general practitioner, an adequate idea of our present knowledge of each subject. The work thus becomes an encyclopaedia as well as an annual. The recent literature of the various subjects is by no means neglected, nor the "annual" rendered subsidiary to the "encyclopedic" idea, as is shown by the fact that in the article on Abdominal Injuries, for instance, there are one hundred and sixty excerpts beside the general text.

Confusion is avoided by employing large type for the general text, and small for the excerpts.

The matter is extremely well arranged for ready reference, and the publisher's work is of the best character. If the standard set in Volume I be maintained in the remaining five volumes, an exceedingly valuable work will be produced.

The excellence of the former annuals issued by the editor is a guarantee that the present work will prove a valuable addition to the physician's working library. The list of associate editors includes men of marked eminence in various lines of medical thought in this country and abroad.

MEDICAL CONGRESS AT THE PARIS EXPOSITION.—Section No. 6 of the Congress to be held in Paris in 1900 will be devoted to medical science. A special building within the grounds of the exposition will be reserved for the Congress.

THE BOSTON

Medical and Surgical Journal.

THURSDAY, APRIL 21, 1898.

A Journal of Medicine, Surgery and Allied Sciences, published at Boston, weekly, by the undersigned.

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THE ATMOSPHERIC TRANSMISSION OF BACTERIAL INFECTION.

THE subject of bacterial contagion has lately received important additions in two particulars: first, with respect to the transportation of bacteria in aerial suspension; and, second, in regard to certain repellent agencies possessed by the human system against inspired micro-organisms. An examination of these researches affords an interesting and instructive study.

The factors which determine the dissemination of bacteria by currents of air have been investigated by Flügge in a series of careful experiments, the results of which materially modify our previous conceptions of the subject. This investigator first studied the conditions under which currents of air, impinging against infected substances, carry off the bacteria encountered. Various materials, such as cloth, earth and dust, were impregnated with cultures of well-defined species of bacteria (*bacillus prodigiosus* and *bacillus megaterium*). A stream of air of known velocity was made to pass over the infected articles and subsequently over nutrient media, upon which any transported bacteria would be deposited.

Some of the more important results obtained were briefly as follows: Moist, infected substances parted with their bacteria only when the impinging current of air attained a velocity of four metres per second. If, however, the bacteria had dried upon the articles, a transportation was effected when the current of air was one and one-third metres per second, while if the bacteria were mixed with the fine dust ordinarily encountered in living rooms, they were carried off by a current of but two-tenths of a millimetre per second. This infected dust may consequently be carried off by currents of air imperceptible to our senses, since we are not able to recognize a current of a velocity under ten centimetres per second. Such dust was also shown to remain floating in the air for a period of four hours.

Infected particles of fluid in minute subdivision were

still more readily transported, being carried horizontally by currents of air with a velocity of but seven-hundredths of a millimetre per second. Such particles remained floating in the air for a period of five hours. In the effort to approximate the conditions of the experiment as closely as possible to those of ordinary life, an individual took a culture of bacillus prodigiosus into his mouth and then at a varying distance from exposed culture media spoke in both high and low tones, coughed, and sneezed. Under all these circumstances, even when the individual spoke in a low tone of voice, the culture media were infected with the bacilli at a distance of several metres.

These results lead to the conclusion that the atmospheric transmission of bacterial infection is much more readily accomplished than has hitherto been believed. In the case, for instance, of a disease where infectious material is expectorated, it is evident that the specific bacteria must, with each act of coughing, be projected into the surrounding air upon both coarse and fine particles of fluid, the larger falling directly upon surrounding objects, the smaller remaining suspended in the air for several hours, during which time they may be distributed over a wide area. When finally these infected particles dry, currents of air of but moderate velocity will suffice to carry off the bacteria. In other affections, the pathogenic bacteria must in a similar manner be transported either from infected body fluids or from the nasal mucus or from fecal discharges or from the surface of the skin.

In view of the fact that individuals suffering from such diseases as diphtheria, consumption, influenza, etc., are likely to be surrounded by pathogenic bacteria in aerial suspension, it becomes of interest to inquire, What are the conditions influencing bacterial activity in the upper respiratory tract of healthy individuals? In other words, what is the fate of micro-organisms in inspired air?

Inasmuch as the inspiratory current is known to be practically freed from germs by the time it reaches the trachea, it is evident that the nasal cavities must perform principally the task of filtration or destruction, a work computed to amount in ordinary city air to the disposal of 14,000 micro-organisms per hour. The manner in which this is accomplished has been studied according to the most approved methods of bacteriological research by Thomsen and Hewlett, of London, and by Park and Wright, of New York. While the results obtained do not in all particulars harmonize, they have brought out the interesting fact that the interior of the nose contains a comparative scantiness of bacteria in proportion to the number present in the inspired air. In the majority of cases examined by the two first-named observers, the mucous membrane of the nose was found to be completely sterile, while the skin of the vestibule and the fringe of hairs lining it swarmed with micro-organisms. When a loopful of bacillus prodigiosus was introduced into the nose past the vibrissæ and deposited upon the mucous membrane, it was found by repeated cultures

that the number of bacilli proceeded promptly to disappear, and after two hours, none could be recovered. These results naturally led to testing the action of sterile nasal mucus upon various bacteria *in vitro*. While little or no effect upon diphtheria bacilli, pseudo-diphtheria bacilli, staphylococci and streptococci were observed, a marked bactericidal power with regard to anthrax bacilli was evident.

It appears, therefore, reasonable to suppose that a number of factors are active in controlling bacterial activity in the healthy nose. Of these the most conspicuous are the filtration performed by the vibrissæ of the vestibule, the natural draining down of clear serum from the upper regions of the nose, the movements of the cilia of the epithelium, and perhaps also the circumstance that the nasal secretion is not a favorable culture medium.

Among the interesting points suggested by a consideration of these two series of investigations, there is one which seems of particular practical value in the matter of prophylaxis. If the attendant upon a contagious case may reasonably be required to change his clothes and subject the exposed portions of his skin to the action of antiseptic solution before mingling with the rest of the community, he should in all justice exercise some means of disinfecting his *vestibulum narium* and *vibrissæ*. A brief consideration of the fact that this region of the attendant probably contains a vastly greater amount of infectious material than all the rest of his body surface should suffice to check the smile which such a recommendation may at first thought excite.

MEDICAL NOTES.

PROF. CHARLES RICHET has been elected a member of the French Academy of Medicine.

THE HOSPITALS OF PARIS. — It is estimated that no less than \$15,000,000 would be required to satisfactorily increase the bed accommodation and improve the sanitary arrangements of the Paris hospitals.

WORTHLESS DIPLOMAS. — The Wisconsin Board of Medical Examiners has refused to recognize the medical diplomas issued by the Milwaukee Medical College and School of Dentistry, alleging that the institution named has not complied with the State laws regulating medical colleges.

INSTRUCTION IN THE SCIENCES PREPARATORY TO MEDICINE. — The University of Paris has been authorized to borrow 1,700,000 fr. for the construction on the rue Cuvier of buildings and laboratories for instruction in the sciences preparatory to the study of medicine, and for the completion of the laboratory of physiological botany at Fontainebleau.

WOMAN'S MEDICAL COLLEGE. — The formal opening of the new building of the Woman's Medical College of the New York Infirmary for Women and Children has taken place. It will be remembered that the building was partially destroyed by fire a year ago.

It is now much improved in every respect, and is abundantly provided with laboratory facilities.

MEASLES AT COLUMBUS, O.—Since the 1st of January over 800 cases of measles have been reported to the health officer in Columbus, O. Of this number 201 were in January, 330 in February, and the balance in March. The report shows 10 deaths during this period, the immediate cause generally being pneumonia. — *Columbus Medical Journal*.

DEATH OF PROFESSOR STRICKER.—In the recent death of Prof. Solomon Stricker, scientific medicine loses one of its most distinguished workers. He was sixty-five years old at the time of his death, which occurred but a week or two after the celebration of the twenty-fifth year of his service as "ordinary professor." His contributions were mainly to pathology and histology.

THE NINTH INTERNATIONAL CONGRESS OF HYGIENE AND DEMOGRAPHY.—The Ninth International Congress of Hygiene and Demography is to be held at Madrid, Spain, April 10 to 17, 1898. It will be under the patronage of His Majesty King Alfonso, and Her Majesty the Queen Regent. Dr. Amalio Gimeno, Professor of the Faculty of Medicine at Madrid, is Secretary-General.

PRIZES FOR THE INVESTIGATION OF AFRICAN DISEASES.—A gift of \$5,000, to be used in promoting the study of the diseases of the Congo, has been received by the Society of Colonial Studies of Brussels, and the Society offers two prizes of \$500 for some notable addition to the knowledge of the evolution of the hematozoon of Laveran and for the discovery of the origin of hemoglobinuric fever.

INTERNATIONAL ASSOCIATION OF RAILWAY SURGEONS.—The next meeting of the International Association of Railway Surgeons will be held in Toronto on July 6th, 7th and 8th. It is anticipated that the meeting will be a large one, some five or six hundred members being expected. It is said that every railroad in North America will be represented at the meeting either by its official surgeon or by proxy.

A FRENCH VIEW OF RECIPROCITY.—The French Chamber of Deputies recently passed a *projet de loi* relative to the practice of pharmacy, one clause of which is to the following effect: "No foreigner, even if holding the French diploma of pharmacy, shall practise pharmacy in France unless, by reciprocity, a Frenchman holding a diploma of pharmacy granted by the country to which the foreigner belongs can practise pharmacy in that country."

A GIFT TO THE NEW YORK ACADEMY OF MEDICINE.—It is stated (*Medical News*, April 16th) that at a meeting of the New York Academy of Medicine held April 7, 1898, ex-President Grover Cleveland, in response to an urgent request, presented to the academy an autograph copy of the address delivered by him at the celebration of its semi-centennial anniversary. The manuscript consists of nine closely written pages of

letter-paper, which have been artistically framed by Tiffany & Co., each page occupying a panel by itself. This gift from the ex-President supplies another invaluable feature to the rapidly accumulating collection of portraits, relics and mementos which decorate the walls of the academy.

BOSTON AND NEW ENGLAND.

ACUTE INFECTIOUS DISEASES IN BOSTON.—For the two weeks ending at noon, April 20, 1898, there were reported to the Board of Health, of Boston, the following numbers of cases of acute infectious disease: diphtheria 68, scarlet fever 35, measles 70, typhoid fever 11.

ATTEMPTS TO BURN A NURSES' HOME.—Within the last three weeks three attempts have been made to burn the Nurses' Home connected with the Somerville Hospital. A fire was recently discovered in the attic of the building, and before the department could get at it a large hole had been burned in the roof. The damage will amount to \$500. On the morning of April 1st a fire was discovered in one of the rooms, and the occupants of the house barely escaped with their lives. Later, another fire was found beneath a sink in the second story. This was extinguished with small loss.

THE MASSACHUSETTS EMERGENCY AND HYGIENE ASSOCIATION.—The Annual Meeting of the Massachusetts Emergency and Hygiene Association was held last week. Reports on the work of the organization were submitted by Mrs. Wells, Miss R. L. Dexter, Miss Ellen M. Tower and Dr. Otis H. Marion. The following officers were elected: President, James J. Minot, M.D.; Honorary Member, Francis Minot, M.D.; Secretary, Miss Rose L. Dexter; Treasurer, Charles Fry; Executive Committee, Mrs. Kate Gannett Wells (Chairman), Miss Ellen M. Tower, Mrs. F. H. Williams, Miss Ida Mason, R. W. Greenleaf, M.D., A. K. Stone, M.D., James J. Minot, M.D., Francis C. Gray, Horatio Davis.

THE NEWTON DISTRICT NURSING ASSOCIATION.—A district nursing association has been organized in Newton, Mass., with the object of providing the sick poor of that city with competent nursing.

NEW YORK.

MEDICAL DEPARTMENT OF THE NEW YORK UNIVERSITY.—The University of the City of New York, which last year expected to have one of the finest medical departments, with one of the strongest faculties, in the country, by the consolidation of Bellevue Hospital Medical College with its own school, seems likely now to be left without any medical school at all. It is said that at the end of the present term the entire governing faculty of the University Medical School, with the exception of the Secretary, Dr. Egbert Le Fevre, will resign their positions. Among those so retiring are Profs. Wm. M. Polk, Lewis H. Stimson, W. Gilman Thompson, George Woolsey,

H. P. Loomis and R. H. Witthaus. The cause of this action on their part, it is asserted, is the non-fulfilment of certain agreements, the precise nature of which has not thus far been made public, by the Council of the University. Until about a year ago the medical school was practically independent of the University, owning its own property, being governed by its own faculty, and conducting its own examinations. Its only connection with the University was a nominal one, the latter simply granting degrees on its recommendation. Last year, however, an agreement was made by which the property was transferred to the University and the government of the school was vested in the University Council. The Council, on its part, agreed to reappoint all the old faculty and assented to certain stipulations as to the prerogatives of its members and the endowment of certain chairs and the general financial management of the school. Recently the faculty have asserted that these stipulations have not been carried out, and that, in consequence, they will no longer retain their positions. It is intimated that they feel so aggrieved at the treatment they have received that they have determined to relinquish all claims to the property with the exception of the Loomis Laboratory, which, under the deed of gift, cannot be alienated, and to organize an entirely new medical school. To this end they have been in negotiation with the authorities of Cornell University for the establishment of a medical department in New York City, and it has just been reported that in the event of such an arrangement being determined upon Col. Olin H. Payne, of New York, will present an endowment for the department amounting to about \$500,000. The buildings of the University Medical School in East Fourteenth Street were destroyed by fire in 1866, and, after occupying quarters in the old New York Hospital on lower Broadway for three years, it was removed to its present location on East Twenty-sixth Street, opposite Bellevue Hospital. In 1875 the buildings were enlarged and improved, and in 1886 the Loomis Laboratory and a dispensary department were added.

PLAY-GROUNDS AND ROOF-GARDENS.—Among the important bills passed at the recent session of the legislature was one throwing open the play-yards and roof-gardens of the public-school buildings for the resort of women and children during vacations. After the bill had been introduced the Corporation Council gave an opinion to the effect that play-grounds could not be legally opened for recreation purposes, and in view of this the legislature made an amendment to the school section of the City Charter covering the matter. Mayor Van Wyck, after a public hearing, and after ascertaining that the Board of Education was in favor of it, has signed the bill, and it will no doubt also be approved by the Governor.

WISE ACTION BY THE STATE COMMISSION IN LUNACY.—The wretched old barracks on Hart's Island where the insane patients who could not be accommodated in the buildings on Ward's Island

were quartered, and which have so long been a reproach to New York, have finally been condemned by the State Commission on Lunacy and torn down. Some of the patients were removed to Ward's Island and others transferred to the State Hospital at Poughkeepsie.

DEATH OF DR. G. H. HUMPHREYS.—Dr. George Hoppin Humphreys, for many years a prominent New York practitioner, died at his home in that city on April 15th. He was born in Philadelphia in 1835, and was graduated from the Jefferson Medical College in 1856. He then spent three years in study and travel in Europe, and in 1859 settled in New York. During the civil war he served as surgeon of the Ninth Regiment, New York Volunteers (Hawkins' Zouaves), and at the battle of Antietam was acting brigade surgeon.

Episcellap.

RUPTURES OF THE ABDOMINAL VISCERA.

I. RUPTURE OF THE SPLEEN.

ACCORDING to Ballance,¹ four successful cases of splenectomy for rupture without external wound have been reported: one by Riegner, of Breslau, one by Pitts, and two by himself. He reports a third successful case, operated upon by himself at St. Thomas's Hospital. The patient, a boy of fourteen, fell about ten feet from the bough of a tree onto a pile of flagstones. He was able to walk a short distance, and was then carried to the hospital. There was found on admission great pain on palpation in the left hypochondriac region, fracture of both forearms; and bloody urine was drawn by catheter. On the following day there was a large area of dullness in the left flank; the pulse rose to 180, with pallor and restlessness. The abdomen was generally distended and tender.

Median laparotomy, supplemented by another incision in the left linea semilunaris, disclosed a large mass of blood-clot surrounding the spleen, which was found greatly swollen and badly lacerated. The splenic flexure of the colon was ecchymotic and bruised. Splenectomy was performed and an uneventful recovery followed.

During convalescence no serious symptoms supervened such as occur after removal of the normal spleen in adults; further, no tenderness of bones was at any time present; but on October 6th the lymphatic glands on the right side of the neck, in both axillæ, and in the left groin were found to be obviously enlarged.

The operation was followed by a temporary leucocytosis and diminution in the number of red blood-corpuscles, but a condition nearly normal was reached in about one month, when the examination showed red corpuscles, 4,630,000; white corpuscles, 12,000; hemoglobin, 92 per cent.

The diagnosis of ruptured spleen is arrived at from: (1) The locality of the injury; (2) the evidence of internal hemorrhage, and (3) the large *fixed* dullness in the left flank.

¹ Practitioner, April, 1898.

"The fixed dullness in the left loin and splenic region is not present in intra-abdominal hemorrhage from other organs, and is caused by this region being occupied by large quantities of clot. The dullness, therefore, cannot change with position, and is pathognomonic of this injury. The unusually large proportion of white corpuscles in splenic venous blood offers an explanation of the local coagulation of the effused blood in splenic rupture. Further, the exceptional coagulability of the splenic blood offers an explanation of the fact that these patients do not rapidly bleed to death. The shock at first is very severe, and is due to the blow on the belly, and the sudden escape of fluid into the abdominal cavity, as well as the great loss of blood. However great the initial collapse in uncomplicated splenic ruptures may be, experience warrants the belief that the bleeding will, at any rate for a time, be arrested by the formation of clot in the ruptures and around the organ, and that in this way a rally will take place sufficient to justify the hope of successful surgical interference."

II. RUPTURE OF THE LIVER.

A case of rupture of the liver successfully treated by abdominal section is reported by Martin.² The patient, a healthy young coal-heaver, nineteen years of age, was caught between two sets of trucks and received a severe "rolling crush." He recovered from the initial shock, and the only persistent symptom was severe pain in the right side of the chest.

On the following day there ensued rapid rise of pulse and temperature, with distention of the abdomen and dullness in the flanks and "abdominal facies." No vomiting or hematuria. Immediate abdominal section, performed in a miner's cottage by the light of a paraffin lamp, disclosed a large amount of fluid and clotted blood in the abdomen, and a rupture on the under surface of the right lobe, two inches deep, and extending upward from the transverse fissure, as far upward as the surgeon could reach. A detached fragment of liver tissue was washed out of the abdomen. Gauze packing was deemed impracticable owing to the situation of the tear, and irrigation with hot water, followed by drainage, was trusted in to control the hemorrhage. The whole abdomen was thoroughly washed out, and a small suprapubic incision made to drain the pelvis. Drainage was proved by two glass tubes, one for the pelvis, and the other for the sub-hepatic space. Convalescence was interrupted by pneumonia, but was finally complete.

THE OTHER KIDNEY IN CONTEMPLATED NEPHRECTOMY.

EDEBOHLS, in the *Annals of Surgery*, for April, 1898, publishes a judicial discussion of the value and limitations of the various methods of diagnosis in renal diseases, such as cystoscopy, catheterization of the ureters, etc. The results of his study of the subject are summed up as follows:

Before extirpating a kidney, a knowledge of the presence and condition of the other kidney becomes of paramount importance.

The aids to obtaining such knowledge are: examining of the urine; palpation of the kidney; cystoscopy; catheteri-

zation of the ureters; skiagraphy; the fluoroscope; and finally exploratory incision.

The presence of a second kidney is determinable by most of these aids.

None of these aids, however, with the exception of the last-mentioned, can, in all cases, give us completely satisfying information regarding the exact condition of the other kidney.

In cases of pyuria and tuberculosis of vesical or unilateral renal origin, catheterization of the ureters involves the risk of infection of a previously healthy ureter and kidney, and should be avoided.

Incision down upon, delivery, and examination of both kidneys (lumbar exploratory incision), as originally proposed and carried out by the writer, should be the rule in every contemplated nephrectomy in which we are not absolutely and beyond peradventure certain of the presence and exact condition of the other kidney.

Modern surgery, with improved methods and technics, has rendered lumbar exploratory incision a safe and expeditious procedure, the most, and generally the only, reliable one for determining the exact condition of the other kidney.

Correspondence.

LIMITED RESPONSIBILITY.

Boston, April 15, 1898.

MR. EDITOR:—In a report in a recent number of the *JOURNAL*, page 277, I find the statement, quoted from the *American Journal of Insanity* of January, 1898, and expanded upon, "that in this case, for the first time, the question of 'limited responsibility' as the result of a lack of development is recognized not only by the experts but by the prosecuting attorney and the court as well."

The first such case reported in a medical journal in this country, so far as I know, was tried in this State and published in the *JOURNAL* eighteen years ago (May 20, 1880, page 483). The world-famous case of Kullmann, who attempted to assassinate Prince Bismarck had already been decided upon precisely the same grounds; and for many years such decisions have been not infrequent in France. A second case in which the plea of limited responsibility, although not from lack of development, was accepted by prosecuting attorney and the court, on the medical testimony, is reported in the *JOURNAL*, as above quoted, where also the remark is made that "of late years it has been more and more the custom of the courts to recognize this limited responsibility."

Yours truly, C. F. FOLSOM, M.D.

METEOROLOGICAL RECORD

For the week ending April 9th, in Boston, according to observations furnished by Sergeant J. W. Smith, of the United States Signal Corps:—

Date.	Baro- meter	Thermom- eter.		Relative humidity.		Direction of wind.		Velocity of wind.		We'th'r. s		Rainfall in inches		
	Daily mean.	Daily mean.	Maximum.	Minimum.	8.00 A. M.	8.00 P. M.	Daily mean.	8.00 A. M.	8.00 P. M.	8.00 A. M.	8.00 P. M.			
S...3	29.97	30	34	26	51	66	58	N.	N.W.	14	9	C.	C.	.09
M...4	30.11	34	38	23	66	62	64	W.	S.	9	8	C.	C.	.09
T...5	29.97	33	36	30	94	95	94	N.	N.	10	12	N.	N.	.26
W...6	29.90	34	41	26	54	62	58	N.W.	W.	16	8	C.	C.	.08
T...7	29.89	38	47	28	66	61	64	N.W.	N.W.	10	16	C.	C.	
F...8	30.00	46	58	35	57	38	46	N.W.	N.	17	14	C.	C.	
S...9	30.19	50	62	38	46	43	44	W.	S.W.	9	12	C.	C.	
Mean														.41

* O., cloudy; C., clear; F., fair; G., fog; H., hazy; S., smoky; E., rain; T., threatening; N., snow. † Indicates trace of rainfall. ☞ Mean for week.

² Birmingham Medical Review, May 19, 1897.

RECORD OF MORTALITY

FOR THE WEEK ENDING SATURDAY, APRIL 9, 1898.

Cities.	Estimated population.	Reported deaths in each.	Deaths under five years.	Percentage of deaths from					
				Infectious diseases.	Acute lung diseases.	Diarrheal diseases.	Diphtheria and croup.	Measles.	
New York . . .	3,438,899	1185	438	10.64	20.68	1.52	3.20	1.76	
Chicago . . .	1,619,226	—	—	—	—	—	—	—	
Philadelphia . .	1,214,258	—	—	—	—	—	—	—	.06
Brooklyn . . .	1,160,000	—	—	—	—	—	—	—	
St. Louis . . .	570,000	190	42	4.24	12.72	—	2.12	—	
Baltimore . . .	550,000	186	50	12.42	20.52	1.62	2.70	2.16	
Boston . . .	517,732	216	56	5.98	14.10	.46	1.38	—	
Cincinnati . . .	405,000	123	—	8.13	12.19	—	2.43	—	
Cleveland . . .	350,000	92	35	4.32	12.96	—	3.24	—	
Pittsburg . . .	286,000	103	38	10.78	19.60	5.88	.98	.98	
Washington . . .	277,000	—	—	—	—	—	1.08	—	
Milwaukee . . .	276,000	—	—	—	—	—	—	—	
Worcester . . .	108,050	40	15	12.50	20.00	—	2.50	—	
Nashville . . .	87,754	35	4	5.72	2.86	—	—	2.86	
Fall River . . .	96,919	34	16	8.82	20.58	8.82	—	—	
Lowell . . .	87,193	39	6	3.45	22.60	—	—	—	
Cambridge . . .	86,812	33	12	6.06	9.09	—	3.03	—	
Lynn . . .	68,220	—	—	—	—	—	—	—	
Charleston . . .	66,165	24	9	8.82	4.16	4.16	—	—	
New Bedford . .	62,416	18	7	11.11	11.11	5.56	5.56	—	
Lawrence . . .	56,510	19	11	—	21.04	—	—	—	
Springfield . .	54,790	17	8	—	23.52	—	—	—	
Holyoke . . .	42,364	9	6	11.11	—	—	—	—	
Portland . . .	40,000	—	—	—	—	—	—	—	
Salem . . .	36,062	12	0	—	8.33	—	—	—	
Brockton . . .	36,853	8	2	25.00	12.50	—	—	—	
Malden . . .	32,894	10	8	30.00	—	—	10.00	—	
Chelsea . . .	32,716	15	8	6.66	13.33	—	—	—	
Haverhill . . .	31,406	15	4	20.00	13.33	—	6.66	13.33	
Gloucester . . .	29,775	—	—	—	—	—	—	—	
Newton . . .	28,990	7	1	14.28	14.28	—	—	—	
Fitchburg . . .	28,392	10	2	—	20.00	—	—	—	
Taunton . . .	27,812	13	3	7.69	15.38	—	—	—	
Quincy . . .	22,562	6	1	—	16.66	—	—	—	
Pittsfield . . .	21,891	—	—	—	—	—	—	—	
Waltham . . .	21,812	2	0	—	—	—	—	—	
Everett . . .	21,575	4	2	25.00	—	—	—	—	
Northampton . .	17,448	—	—	—	—	—	—	—	
Newburyport . .	14,794	4	0	—	—	—	—	—	
Amesbury . . .	10,920	—	—	—	—	—	—	—	

Deaths reported 2,550; under five years of age 818; principal infectious diseases (small-pox, measles, diphtheria and croup, cerebro-spinal meningitis, diarrheal diseases, whooping-cough, erysipelas and fevers) 239, acute lung diseases 441, consumption 295, diphtheria and croup 65, diarrheal diseases 36, measles 30, typhoid fever 26, cerebro-spinal meningitis 26, whooping-cough 26, scarlet fever 20, erysipelas 12.

From typhoid fever New York and Baltimore 5 each, St. Louis and Pittsburg 3 each, Cincinnati and Providence 2 each, Boston, Cleveland, Nashville, Charleston, Worcester and Chelsea 1 each. From cerebro-spinal meningitis New York 7, Boston 4, Providence 3, Baltimore, Worcester and Malden 2 each, St. Louis, Lowell, Cambridge, Holyoke, Newton and Everett 1 each. From whooping-cough New York 14, Cincinnati 5, Boston 2, Baltimore, Pittsburg, Worcester and Brockton 1 each. From scarlet fever New York 17, Baltimore 2, Brockton 1. From erysipelas New York 9, Boston 2, Baltimore 1.

In the thirty-three greater towns of England and Wales, with an estimated population of 11,218,378, for the week ending April 2d, the death-rate was 21.5. Deaths reported 4,636; acute diseases of the respiratory organs (London) 451, measles 226, whooping-cough 126, diphtheria 64, scarlet fever 49, diarrheal 39, fever 34.

The death-rates ranged from 14.7 in West Ham to 30.7 in Liverpool; Birmingham, 21.3, Bradford 22.8, Cardiff 17.6, Gateshead 15.6, Hull 18.1, Leeds 24.4, London 21.8, Manchester 23.2, Newcastle-on-Tyne 17.3, Nottingham 21.2, Portsmouth 16.8, Sheffield 19.3, Sunderland 19.9.

OFFICIAL LIST OF CHANGES IN THE STATIONS AND DUTIES OF OFFICERS SERVING IN THE MEDICAL DEPARTMENT, U. S. ARMY, FROM APRIL 9, 1898, TO APRIL 15, 1898.

The retirement from active service by the President on April 10, 1898, of LIEUT.-COL. DAVID L. HUNTINGTON, deputy surgeon-general, by operation of law, is announced.

CAPTAIN FRANCIS A. WINTER, assistant surgeon, is relieved from duty at the U. S. Military Academy, West Point, N. Y., and ordered to Jefferson Barracks, Mo., for duty at that post.

OFFICIAL LIST OF CHANGES OF STATIONS AND DUTIES OF COMMISSIONED OFFICERS OF THE UNITED STATES MARINE-HOSPITAL SERVICE FOR THE SEVEN DAYS ENDING APRIL 14, 1898.

SPRAGUE, E. K., passed assistant surgeon. Granted leave of absence for ten days from April 8th. April 11, 1898.

HASTINGS, HILL, assistant surgeon. Granted leave of absence for seven days upon being relieved from duty at Middleborough, Ky. April 11, 1898.

APPOINTMENTS.

DR. A. A. TAFT has been appointed first assistant physician at the Long Island (Boston Harbor) Hospital, in place of DR. C. M. HUTCHINSON, resigned. The position of second assistant physician (salary \$500) is to be filled.

Appointments at the Boston Dispensary: DRs. ALFRED A. WHEELER, JAMES S. STONE, WILLIAM P. COUES and GEORGE A. HARLOW have been appointed assistant surgeons; DR. WILLIAM COGSWELL, assistant surgeon to the Department for Diseases of the Genito-Urinary System; DR. SIDNEY A. LORD, assistant physician to the Department for Diseases of the Nervous System; and DRs. WILLIAM H. GRANT, CHARLES N. BARNEY, FREDERIC J. COTTON, ELLIOTT P. JOSLIN, FREDERIC W. PEARL, FRANKLIN S. NEWELL, JOSHUA C. HUBBARD, district physicians.

BOYLSTON MEDICAL PRIZE.

The Boylston Medical Prize of \$150 has been awarded this year to Dr. Guy Hinsdale, of Philadelphia, Pa., for an essay on "Acromegaly."

PLAGUE AND CHOLERA.

As reported to the Marine-Hospital Service, there were 3,439 deaths from the plague in Bombay, from February 26th to March 15th; and in the same city, from February 24th to March 15th, 10 deaths from cholera. In Calcutta, from February 19th to March 5th, there were 43 deaths from cholera.

RECENT DEATH.

ELISHA WILBOUR AIKEN, M.D., M.M.S.S., died in Hingham, April 13, 1898, aged seventy years.

BOOKS AND PAMPHLETS RECEIVED.

Bulletin of the Board of Health, State of Louisiana, for October, November and December, 1897.

The Possibilities of Antitoxin in Diphtheria. By George Suttle, M.D., Ph.C. Reprint. 1898.

Some Conclusions Drawn from Experiences in Pelvic Surgery. By A. V. L. Brokaw, M.D., St. Louis, Mo.

An Exhibition of Radiographs, with Remarks. By A. V. L. Brokaw, M.D., St. Louis, Mo. Reprint. 1897.

Officers and Members and Constitution of the American Neurological Association. Published by the Association. 1898.

Acute Empyema of the Frontal Sinus, with Report of Cases. By Ralph J. Wenner, M.D., Cleveland, O. Reprint. 1898.

Quarantine Regulations, Marine-Hospital Service. Speech of Hon. Donelson Caffery, of Louisiana, in the Senate of the United States, March 22, 23 and 30, 1896.

Sex in Generation: The Consideration of Some Factors Exerting an Influence in its Determination. By Daniel E. Keefe, M.D., Springfield, Mass. Reprint. 1898.

The Inguinal Operation for Femoral Hernia. The Other Kidney in Contemplated Nephrectomy. By George M. Edebohl, A.M., M.D., New York. Reprints. 1897-98.

A Case of Vicarious Menstruation from the Lungs. Digestion Leucocytosis in Stomach Disease. A Case of Acromegaly with Diabetes. By T. L. Chadbourne, M.D., Columbus, O. Reprints. 1898.

Three Cases of Amebic Dysentery. Some Observations on a Method of Multiplication of the Amebic Dysenteriae (Ameba Coli). Amebic Dysentery. By H. F. Harris, M.D., Atlanta, Ga. Reprints. 1892-94-98.

Yellow Fever in the West Indies. By Izett Anderson, M.D., Edin., Extraordinary Member of the Royal Medical Society of Edinburgh; Honorary Member of the Institute of Jamaica; formerly Resident Surgeon of the Colonial and Seamen's Hospital, Georgetown, British Guiana; Member of the Government Medical Council, etc. London: H. K. Lewis. 1898.

Original Articles.

HYPERACIDITY OF THE STOMACH AND ITS TREATMENT.*

BY ELLIOTT P. JOSLIN, M.D., BOSTON.

KUSSMAUL recommended the stomach-pump in 1869 for the treatment of gastric dilatation; Leube advised the use of the same two years later for diagnostic purposes; and Ewald in 1875 demonstrated that soft-rubber tubes as well as stiff ones could be passed into the stomach, and thus made practical the work of his predecessors. The stomach-tube made the size, position and motility of the stomach definite entities, and enabled the physician to examine the stomach contents after test meals. To this examination von d. Velden in 1879 contributed the color reaction for HCl, and that marks the beginning of our universal, clinical and chemical study of gastric digestion.

It is with only one phase of this subject that my paper deals to-night, namely, the excessive secretion of HCl. This we usually term hyperacidity; but to be accurate we should say hyperchlorhydria, for hyperacidity of the stomach can be brought about just as well from the organic acetic, butyric and lactic acids as from the inorganic acid HCl. In fact, in the case of a child—a patient of Dr. Charles P. Putnam—whose vomitus I examined, the acidity was the greatest I have ever met with, and yet no free HCl was present. The great acidity in this case was due to lactic acid. Of this class of cases, I have nothing further to say.

Hyperchlorhydria has not been studied as much as it deserves to be for two reasons: gastric cancer is usually associated with a diminution or absence of HCl; and as the first requisite of differential gastric diagnosis is to exclude cancer, study has been chiefly directed to its symptom, diminished HCl.

In the next place a determination of increased HCl requires a quantitative test, and this necessitates apparatus and time.

Hyperacidity of the stomach is important because of its frequency. It is especially important to us because it appears to be much more common here than in Europe. Einhorn and Reed both had the opportunity to work in a German polyclinic, and both emphasize this fact. Einhorn¹ goes so far as to say that in nearly one-half of all stomach patients hypersecretion is present. Reed² considers it the most common gastric derangement in this country. The cases also vary in frequency in the different localities of Germany.

ETIOLOGY AND PATHOLOGY.

In order to explain the over-action of a gland we may presuppose agencies acting through the nervous system on that gland or changes in its component cells. For many years hyperacidity has been considered purely a neurosis; but of late the study of bits of mucous membrane, obtained by washing out the stomach, has shown that some cases at least are due to changes in the stomach walls. In considering the action of the nervous system in hyperacidity, the subject naturally divides itself into the groups of functional and organic diseases. That hyperacidity is a frequent occurrence in hysteria and neurasthenia has been known for years,

and it seems only rational that this should be the case; for why should not a disease which calls out hyperesthesia or hyperalgesia in one person not call forth an increased function in another part of the body? Of course, the statement that hyperacidity is common in these functional disorders is no proof that they cause it, but their frequent occurrence together gives much force to such a view. Not only in these severer neuroses, but in their milder types is hyperacidity common. In active business men, in accountants, in teachers, in doctors it is a frequent occurrence. With migraine it has much in common. The two often occur together in that class of cases of hypersecretion which Reichman has described. In some of these cases the interdependence is very marked, because the migraine disappears when the stomach is washed out. But on looking at these cases a little more closely, more than a nervous element presents itself as a reason for the disturbed gastric function—such, for example, as the irregularities in the hygiene of eating which are so common among us Americans. Irregular meals or none at all, a very little at one time, too much at another, improperly masticated food—all these factors have an influence on a stomach whose nervous apparatus in our busy world is often predisposed to wrong action.

Of the organic nervous diseases, those of the brain and spinal cord naturally fall into one class. Tabes is by far the most important of these, on account of its frequency and the frequency of hyperacidity associated with it. The differential diagnosis between a gastric crisis and hyperacidity is often difficult and at times impossible. So often are the functional diseases and tabes associated with an excessive secretion of HCl, that as soon as the patient's history becomes suggestive of hyperacidity, I am on the lookout for increased or absent knee-jerks.

It is, however, in the peripheral nerves that we get our most satisfactory evidence of the direct connection between the nervous system and the hypersecretion of HCl. It was in ulcer of the stomach that hyperacidity was first prominently brought to notice, just as its absence was first noticed in cancer. But we have passed beyond that stage of gastric study. Now we know that it is not the cancer, but the accompanying catarrh which is responsible for our lack of HCl. And so with ulcer, we look upon the accompanying hyperacidity as a result of the exposure of the peripheral nerves at its base, or if the ulcer has healed, from the pressure exerted on the nerves by the scar, as in the stump of an amputation, and not simply as an indefinite accompaniment of the ulcer.

In the ulcer the nerves are nearer the surface and so more exposed. On the other hand, we may have stronger stimuli working through an intact mucous membrane, and so producing the same result. As stimuli may be considered those occurring in the food. Spices (pepper, salt, mustard) represent in the literature one class; and everywhere one finds in the rules for treatment of hyperacidity that these should be excluded. But this appears to be simply another example of copying from one book to another, and the following of one's own impressions. The experiments of Brandt³ show that the gastric secretion is only slightly increased by the administration of these in solutions of peptone; that it is constantly and notably diminished by the simultaneous introduction of spices and a solution of sugar. Alcohol has more

* Read at a Meeting of the Worcester Medical Association, February 26, 1898.

perhaps to be said in its favor. I hesitate to make any statements regarding it until Prof. S. H. Chittenden has completed his report on the subject.*

As regards the stimulating effects of foods, the matter is still in an experimental stage. Little work has been done on the subject. The point to be settled is this, — Does albuminous food stimulate the secretion of HCl more than carbohydrates? V. Jaksch⁴ in 1890 showed by his experiments that HCl was increased the most quickly after meat, somewhat more slowly after milk, and slowest of all following carbohydrates. Opposing his view is that of Schüle,⁵ who demonstrated by his experiments that the strength of the acid secretion was not notably influenced by the quality of the ingesta. V. Jaksch and Schüle carried on their investigations by giving test meals of a definite character to their patients and then examining the stomach contents. Attention has been called to the paucity of data in this line, and undoubtedly during the present year there will be more contributions to the subject. Another method of determining the action of these two classes of food is to feed similar animals for long periods on a diet rich in carbohydrates and proteids respectively, and then determine the relative strength of HCl in their stomachs. Hemmeter records one such experiment in which two dogs were so fed for one year. At the end of that time the dog on the proteid diet showed the more HCl. With so few data it will be far better for us to wait further developments and not draw hasty conclusions.

It certainly is a most welcome contribution to gastric pathology that Jaworski, Hayem, Cohnheim, Einhorn and Hemmeter have established a pathological basis of hyperacidity; it narrows by one more circle the constantly diminishing class of functional disorders. For it is the *bête noire* of every gastric differential diagnosis, that we must include a neurosis in our scheme, no matter whether we have too much, too little or a normal amount of acid. These observers have found in one-half to two-thirds of their cases of hyperacidity an increase of the acid-secreting cells, and correspondingly an atrophy of the same in anacidity.

The most important factor of all in hyperacidity appears to be the motility of the stomach. Our whole conception of its motor power has undergone marked changes in the last few years. The experiments of Moritz,⁶ Meltzer,⁷ and those shown only last week by W. B. Cannon⁸ at the Boston Society of Medical Sciences, have settled beyond a doubt that the peristalsis is confined to the antrum pylori, and that the little waves which pass over the cardiac region are of small account. We can make from our accumulated clinical evidence these two postulates:

(1) In the overwhelming majority of cases of hyperacidity we have an atonic or dilated stomach.

(2) Hyperacidity can cause a stenosis of the pylorus through a spasm of its muscles and so lead to dilatation of the stomach and stasis.

But whether the dilated stomach appears first, and through its stagnant contents leads to stimulation of the mucosa and so increases the HCl, or whether the increased HCl is the primary factor, and through its causation of pyloric spasm makes the dilatation, it is very hard to decide. It seems more probable that the dilatation causes the hyperacidity, because by its re-

moval, either by medicinal or surgical treatment, the hyperacidity disappears. This has been well shown by Carle,⁹ who has observed the diminution of hyperacidity following gastro-enterostomies.

Some results recently published by Dr. Hewes¹⁰ are especially interesting, because they stand in close relation to what has just been said regarding stagnant food and hyperacidity, as well as to what was earlier commented upon, namely, the prevalence of hyperacidity in this country. After the Ewald test breakfast he found that the residue in the stomachs of healthy individuals was nearly twice as great as that obtained by European observers. Perhaps then we should say, the American tendency is toward diminished gastric motility, and that this is one of the causes of our many hyperacidity cases.

Hyperacidity is also met with in those cases of continual or periodic hypersecretion of the stomach described by Reichman. Between these and the cases of simply diminished motility it is hard to draw the line.

SYMPTOMS.

Hyperacidity of the stomach is a symptom. It is not a disease. It manifests itself, however, in so many ways and so often rules the clinical picture, that it merits a special symptomatology of its own. On the other hand, like gastric ulcer, it can exist in a latent form.

Pain brings the patient to the physician. This pain can vary from slight distress to that of so severe a character that morphia relieves only temporarily and the patient finally becomes an opium habitué. This was the case in two of the subjects whom I have seen. The pain has its seat most often in the epigastrium, in the vicinity of the pylorus. It remains localized, as a rule. At times it may extend even up to the shoulders, like the pain of gall-stones; again, it may be so low down as to simulate an appendicitis. Typically it comes between meals. But somehow the patient is no more apt to volunteer this symptom than he is to say that the pain is relieved by food. Both of these facts he acknowledges as soon as his attention is called to the matter. The pain is described as dull, heavy, more rarely gnawing. It is not affected by pressure. Of course, it varies with the cause of the hyperacidity.

The appetite is good; there is hunger-bolimia — but unlike patients with ulcer, these individuals are not afraid to eat.

Belching is a frequent accompaniment, especially in those cases of a functional, nervous origin. This belching is obviously a neurosis, because it continues for such lengthy periods and in such great amounts that no fermentative process in the stomach could explain it. Then, too, the gas is odorless; such a case recently sent to me showed a total hyperacidity of 154 and 0.8066 per cent. free HCl.

Vomiting occurs, not on account of the hyperacidity, but is due to the underlying disease — a hypersecretion, an ulcer or dilatation of the stomach. Thirst is present in the severe, but absent in the mild cases.

The decisive test of hyperacidity is its demonstration, and the results of such an examination are so positive that one should pass the stomach-tube in as routine a way as the surgeon gives ether to examine a fracture. In fact, the two acts are very similar, for in both there is the heart to examine and the false teeth to remove;

* Professor Chittenden's first article is in the American Journal of Medical Science, January to April, 1897. The second appeared since this paper was read, in the first number of the American Journal of Physiology.

and in each case if the patient is an alcoholic there is sure to be an uncomfortable experience.

The microscopic examination of the stomach contents is not of so much value for hyperacidity as for anacidity. The odor, though often sour at first, does not get putrid even if the fluid is kept some days.

Congo paper is little used in this vicinity. As you know, it reacts only to free HCl in the stomach contents like the phloroglucin-vanillin test of Günzburg. It is extremely sensitive, and from the depth of the blue color, which it takes on in the presence of HCl, can be made a shrewd guess as to an excess.

As for the quantitative methods, the one in general use is that of Mintz, in which we add one-tenth normal NaOH solution to 5 or 10 c. c. of filtered contents until we fail to get a reaction for free HCl, and then add phenolphthalein to the same solution and determine the total acidity. In these cases the examination is not complicated by the presence of lactic acid as this ceases to be formed when HCl is present to the amount of 0.12 per cent.

The diagnosis can also be made with the microscope. If meat has been taken, we seldom see a muscle fibre remaining; if the diet has been a starchy one, the starch granules look unchanged. If we see sarcinae, we know HCl is present in connection with diminished motility.

The examination of stomach contents is a very simple procedure; and the confidence which the knowledge of such an examination imparts to the physician, and to the patient as well, is just what is needed in treating a stomach case.

DIAGNOSIS.

The diagnosis of hyperacidity, then, in modern medicine is easy. It is the doctor's fault if he does not make it. The recognition of the underlying cause of the hyperacidity is not so obvious, but in the vast majority of cases it will be disclosed by thorough study.

There are just two conditions among the many I will speak of in differential diagnosis:

The first, because of the rarity of its recognition, is ventral herniæ, more especially those of the linea alba¹¹ in the epigastric region. These cause small soft tumors, the size of a marble, contain a bit of fat, omentum or rarely the gut, and give rise in proportion to their size to an immense deal of disturbance. A cough will bring them out, and gives to the finger resting over the ring the impression of a handful of little stones being thrown against it—Litten's phenomenon. These herniæ can give rise to symptoms similar to those of hyperacidity even in its severest forms. Their recognition, treatment and cure by operation is sufficient to exclude hyperacidity.

The other condition was brought to my attention by Ewald's assistant, Kuttner. He emphasized the fact that in many of the cases of hyperacidity, hyperesthesia of the stomach is present. These patients resent pressure in the epigastrium; and this symptom, with the hyperchlorhydria, leads one to think wrongly of ulcer. There are several points in the differential diagnosis of the two affections which are too obvious to mention. One is not so well known and was emphasized by Kuttner. A patient with gastric ulcer will quickly respond to a rigidly enforced diet-cure and improve; a patient with the hyperesthetic abdomen is not benefited, but keeps on vomiting.

TREATMENT.

Our principle of action is to treat the cause of the hyperacidity. If it be a neurosis, conquer that; if it is an ulcer, the rules are definitely laid out for us; if it is a disturbed motility, there are several methods of procedure open. Of the neurotic treatment and the treatment of ulcer, I will not speak. The treatment of the motility of the stomach stands in such close relation to the relief of the hyperacidity as to deserve mention at some length. In general, anything that will build up the general condition of the patient will benefit the motor action of the stomach. Rowing and golf, by strengthening the abdominal muscles, will give support to the over-loaded organ. Massage by a skillful operator may empty it, and so be of value. At one time it was thought that electricity was of great use, but the experiments of Meltzer¹² have shattered our hopes. He sums up his results as follows: "The percutaneous and direct faradization of the stomach and of the intestine cannot produce any contraction in these parts."

In a medicinal way there is one drug which stands out above all others in the treatment of motility. That there is only one, means that one is of value. Whether it is the nux vomica itself or the method of administration recommended to me by Dr. James J. Putnam that gives the remarkably good effect I will not pretend to say. Probably it is both. The method is as follows: Ten drops of the tincture of nux vomica three times a day, increase one drop daily up to 20 or 30 drops t. i. d. The increasing doses have a mental as well as a medicinal effect on the patient.

Should these measures not suffice, our resource is to the stomach-tube. But this is exhausting, and a patient soon feels weakened by it. Then, too, a large amount of food is in this way removed from the body. This was clearly shown in a metabolism experiment I carried on in Ewald's laboratory last summer on a case of gastric cancer.¹³ The estimation of the nitrogen in the stomach washings revealed the fact that 28.5 per cent. (nearly one-fourth) of all the food given by the mouth was removed by the tube on the following morning.

For those obstinate cases of gastric dilatation there is one indication and that a surgical one. The subject of gastric operations was considered by Leube and Mikulicz¹⁴ in the last German surgical congress, and received such careful attention as to deserve mention here. It is simply astounding that with all our own surgical skill so little work has been done on the stomach. Perhaps it is partially the fault of the medical men that they fail to make an early diagnosis. Up to 1890, for benignant pyloric stenosis and gastric ulcer without complications, there were 72 cases operated upon, with a mortality of 36.1 per cent. From 1891 to the beginning of 1897, there were 162 operations, with a mortality of only 16 per cent.; that is, the mortality in six years was reduced one-half. Mikulicz himself has performed a great many operations, and his last ten have had a mortality of zero. These statistics speak for themselves.

As the stomach absorbs no water, it is in these severe cases of hyperacidity associated with gastric dilatation that thirst is so troublesome. This is best relieved by nutrient enemata of normal salt solution. That doctor is fortunate who can prescribe this for the first time to a patient who has been parched for days. Food is also absorbed extraordinarily well by the rectum, and

I was able to show that a cancer patient in Ewald's clinic took up over 87 per cent. of the rectal enemata given him.¹⁴

As for the hyperacidity proper, Jürgensen¹⁵ has recently gone through the multitude of text-books on gastric diseases and his findings are worth noting. He places at the commencement of his article this sentence, written by Leube in 1871, "In the laying down of dietetic rules, this consideration I believe must be placed before all others, that for the diseased stomach, decidedly no better diet exists than rest," and then calls attention to the two rules which must govern our treatment in hyperacidity. The first of these, the etiological, has been already touched upon. His second is, that an overstimulated function requires a sparing, quieting sort of treatment. He then goes on to consider what the books have to say on the subject. Nearly all recommend a proteid diet. But does not this do exactly what we are trying to prevent? Does it not stimulate the acid cells? Unfortunately the fact is not settled whether there is more free HCl in the stomach after a proteid or carbohydrate diet. But this we do know, albuminous matter will combine with more HCl than will the same amount of carbohydrate matter. The stomach appears normally to secrete HCl until free acid exists in a certain percent. in the stomach contents. To accomplish this after a proteid diet it must secrete more than after a carbohydrate one.

Rationally, then, an albuminous diet is wrong in cases of hyperacidity. This view has steadily gained ground the last year as the literature in Germany, France and America shows. All writers acknowledge the good effects of proteids temporarily, and in the milder cases the symptomatic treatment seems indicated rather than the rational. Carbohydrates for the severe cases, proteids for the mild ones. Yet I must say that the proteid diet has given me satisfaction almost invariably in the cases in which I have tried it. In giving carbohydrates, however, it must be remembered that the action of the ptyalin is soon destroyed in the stomach. Therefore foods in which the starch has been converted into dextrine are indicated. Or we might attempt to produce the same result by giving one of the various forms of diastase.

The pain arising from the acid itself can be neutralized in various ways, the simplest of which is to dilute the acid by liquid. This, of course, should not be encouraged for fear of producing trouble with motility and thereby augmenting the existing condition. Another means is to give a diet which will combine with the excess. This diet is the albuminous. How powerful is its action in this direction is shown by Professor Chittenden in his book on "Digestive Proteolosis." One hundred grammes of dry egg-albumin, free from inorganic salts, will combine with three litres of 0.2 per cent. HCl.¹⁶ Expressed in another way, two or three eggs will combine with a pint of 0.2 per cent. HCl.

In Professor Chittenden's little book another point is brought out worth remembering. The products of proteid digestion, that is, peptones, have the power of combining with a greater quantity of HCl than the original proteids.¹⁷ This being the case it would be most rational to give our patients peptones, which so far as I know has not yet been done.

We prescribe frequent meals, but do these give that rest to the stomach which Leube holds to be so essen-

tial? Does this treatment not tend to still more impair the motility? The aim therefore should be to give food in small bulk, and such preparations as the malted milk tablets can be of service.

Indeed, they are useful in another way, because, like the Bergman chewing tablets, they are held for some time in the mouth and so increase the alkaline saliva. Thus the organism is made to furnish its own alkali. As for the alkalies proper all agree that they are temporarily of great use, though in time they lose some of their power and are purely symptomatic. The special variety is not of consequence. Combined with bismuth their action is promoted. If the alkalies are given at all, they should be given in large doses — in grammes, not grains.

No matter what our treatment or rule of diet is in any case of stomach trouble we should always bear in mind that fact, established a few years ago by v. Noorden,¹⁸ that the marasmus of probably all stomach patients except those with cancer arises from the diminished amount of food eaten. Your patient can get along without a stomach, but he cannot get along without food.

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ACCIDENT NEUROSES AND FOOT-BALL PLAYING.

BY MORTON PRINCE, M.D.

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In the JOURNAL for April 14th an interesting editorial discusses the question, whether in naval wars of the future accident neuroses will not play a prominent part amongst the injuries likely to be received on a modern battleship. The article, the writer explicitly states, was only meant to be suggestive; but the question is asked, "Are we to suppose that men cooped up in extremely small spaces, stormed at from without by projectiles of enormous force, and subjected to terrific concussion of their own armament, should not suffer a like nervous derangement?" This raises the whole question of the real causal factor of accident neuroses, or, to be more specific, and call things by their right names, traumatic neurasthenia and hysteria.

Personally, I believe that the real factor is the psychological or emotional element, and that the physical con-

cussion plays a part only in so far as it intensifies the emotional effect. Just as, if we are startled by a sudden noise close to the ear, we are still more startled if the sound is accompanied by a slap on the back. But it is not necessary for the purposes of this discussion to assume that the emotional factor is the sole and universal exciting agent, but merely that it is the principal agent in the majority of cases. This idea seems to be accepted by the writer of the editorial, for it obviously underlies his discussion of the *pros* and *cons*.

As to the question propounded, it seems to me very unlikely that accident neuroses will be found in any large numbers to follow a battle in a modern warship, and not at all in the same proportion as they follow railway accidents. In fact, I cannot help believing that they will be extremely rare; for, as is intimated by the editorial writer, all evidence points to the fact that a certain preparedness of the mind is necessary for the psychical factor to take effect. Some two or three years ago, while watching a foot-ball game, I was impressed with the fact of the tremendous force with which the players are constantly either thrown upon the ground or come into collision with each other. A man weighing 160 to 170 pounds, running at full speed, and suddenly thrown to the ground, must strike with a force fully equal to, and often greater than that with which he is thrown in many railroad and other accidents, which are followed by severe neuroses. In fact, it is well known that physical trauma, when these neuroses develop, may be very slight. When two foot-ball players meet in collision, the physical concussion must be still greater; and the physician who is a novice to the game, must sometimes be startled when seeing the violence with which often the heads of the players are bumped against the ground or kicked.

It occurred to me, that, if accident neuroses were due to the physical trauma pure and simple, they must, as a necessary consequence, follow foot-ball accidents; and if it were found that they did not follow such accidents, some other element than physical trauma must be the true etiological factor. I accordingly addressed a circular letter to the medical director or manager of the principal foot-ball teams of the country. Answers were received from six colleges, namely, Harvard, Princeton, University of Michigan, Cornell, Williams and Dartmouth. The replies from the first four colleges were made by the surgeons in charge, and by the captains or managers of the other two. The reply in each case was negative, my correspondent stating that he had never known of an accident neurosis to be caused by a foot-ball accident. Although these answers were from only six colleges, it must be borne in mind that in most instances, probably in all, they covered an experience extending over several years of foot-ball playing, and therefore with many games and a large number of men.

It is possible, of course, that further inquiries might discover an occasional case from this cause, but such cases must be rare. It would seem that these results support strongly the theory that trauma, as such, will not produce traumatic neurasthenia or hysteria—that something more is required, namely, a psychical shock. But why does psychical shock not accompany the severe concussion of foot-ball playing? It would seem to me that it is for two reasons: First, the intense mental excitement and concentration of thought which dominates the mind of the foot-ball player, and crowds out every other form of mental excitation. Second, and

perhaps more important, is the preparedness or negative expectation of the mind with which the player goes into the contest. A foot-ball player is perfectly well aware of, and prepared for, any accident that may follow; he knows the kind and extent of any injury he is likely to receive, and has made up his mind to the possibility of it; and therefore there is no shock or terror just antecedent to or at the moment when he is injured; and, above all, he feels confident that the danger to life is nil. In railroad accidents it is otherwise. All previous knowledge and experience has cultivated in the mind of the public and individual the idea that a railroad accident is a terrible thing, and that every sort of calamity, and especially death, is likely to result. Given a railroad accident, and there is at the critical moment an expectation, the result of a previous auto-suggestion, that the individual is likely to be killed or badly maimed; at the first crash or indication of an accident, these ideas at once arise in an indefinite form in the mind, and with them, terror and psychical shock. The same is true of the effect of earthquakes, which it is known are often followed by neuroses.

Now, in the absence of definite facts, but reasoning by analogy, it would seem that the psychical conditions of future naval-war battles would far more closely resemble those of foot-ball playing than railroad accidents. The soldier or sailor, by a long course of years of mental training, has made up his mind to all sorts of possible contingencies; he has faced beforehand the idea of wounds or death, and accepts the results. He is willing, as a rule, to take his chances; and there will be, as the writer of the editorial suggests in discussing this side of the question, no element of surprise, and consequently not that kind of terror which causes neuroses. Perhaps under exceptional circumstances, like that of the blowing up of the *Maine*, the elements of surprise and unpreparedness may enter.

This preparedness of the mind in expecting future nervous events, probably plays a large part in the slight accidents of social life. It is notorious that fainting has gone out of fashion amongst women, as compared to its frequency in the last two or three generations. The heroines of the old-fashioned novel always fainted under certain circumstances. The psychological explanation of this probably is that a girl was brought up from childhood, by the subtle unconscious education of surroundings and public opinion, with the idea that under certain conditions of excitement she would faint. The suggestion is put into her mind as in a hypnotic experiment; later, some trivial but expected event occurs, and the future heroine of romances faints in accordance with the early-received suggestion. The suggestion acts here as it does in hypnosis in producing post-hypnotic phenomena.

Returning to the matter of foot-ball accidents, it may be mentioned that an analogous class of facts has been learned regarding the frequency of traumatic neuroses amongst railroad employees, as contrasted with their frequency amongst the travelling public. According to Van Outen, out of 18,275 injured employees of a railroad, there were only 8 cases of traumatic neurosis, or 1 in 2,284½; while of 844 injured passengers there were 11 cases, or 1 in 76.7; all which points to the conclusion that mental preparedness or expectation is a very important factor in

inducing that mental disorganization which is the neurosis.

NOTE. — Since the above was written it was stated during a discussion of the Medico-Psychological Society, that Dr. M. A. Starr had reported several cases resulting from foot-ball playing. The rarity of such accidents is, nevertheless, a fact, and that a few cases should occur in no way invalidates the above conclusions, but rather is what should be expected.

A CASE OF CARBOLIC-ACID POISONING.¹

BY FRANK HOLYOKE, M.D., HOLYOKE,
Medical Examiner.

At four o'clock P. M. on January 9th, Alfred S., an Englishman, fifty-three years of age, died suddenly in Holyoke at his sister's home, before medical aid could reach him. He had been a heavy drinker of alcoholic stimulants for many years; but the sister and others in the house were certain that he had not had any alcoholic drink for two days and had not taken food for twenty-four hours.

At six o'clock, two hours after the man's death, I viewed the body, which was found lying in his under-fannels obliquely across the bed on his back. The head lay towards the foot of the bed. The bed-clothes (in disorder) were soaked with urine. The pillow, which had been placed under his head by his sister about twenty-five minutes before death, was wet with sweat where his face had lain. There was no sign of vomiting.

An empty two-ounce bottle labelled "Pure Carbolic Acid," I found under his pillow at the head of the bed. The bottle was corked. There was no trace of any carbolic acid on the outside of the bottle beyond its lip. It had been bought at a local drug store and the sale properly registered as sold January 3d to Alfred S. "for a wash."

His sister's child, sixteen years of age, was seated with a playmate in the room next to his bedroom. She heard him swear loudly and then begin to moan; and she called her mother's attention to her uncle's moaning, which lasted possibly for three minutes before she gave the alarm. Her mother rushed in and found him lying as described, and heard him shouting loudly "How goes it?" but he was unconscious. He died about twenty-five minutes after she entered the room, during which time he appeared to be unconscious, no twitching or convulsive movement, or respirative sighing being observed. The eyes, she said, were staring and glassy.

The body was that of a well-developed man of large, powerful frame, six feet tall, weighing about one hundred and seventy pounds. The skin-surface, except for some light-colored, hypostatic spots over the back, had a very pale, yellowish, waxy appearance, having a moist, clammy feel and non-elastic. The belly was flat. No rigor mortis had developed. The mouth and eyes were closed; the pupils were moderately contracted. The expression of the countenance was composed.

The mucous membrane of the mouth, tongue and inside of the lips was of an opalescent whiteness. I could detect no odor of carbolic acid upon the fingers, nor from the body, nor from the mouth, though its odor in the room was reported by the sister as having been very strong while he yet breathed. But she

thought nothing of that, for he had often used it on a varicose ulcer of the leg. The ulcer referred to, however, had evidently not been dressed for a number of days.

I decided to make an autopsy on the following morning; not because I had any reason to suspect foul play, but, first, because I had never seen a case of carbolic-acid poisoning, and, secondly, because it occurred to me that I might require such practical knowledge, at some future time, to better serve the interests of the State — though I am not certain that such excuses are justifiable.

The autopsy was held in his bedroom at 10.30 A. M. on the following day, the body having lain on a cooler over night. Rigor mortis was now complete, and there were hypostatic spots, deeper in color and covering a larger surface of the back and limbs. The odor of carbolic acid was not detected by any one present before the body was opened. On opening the abdomen the excessive fatty condition of the abdominal walls, the omentum, etc., was marked.

The outer wall of the small intestine throughout the first six feet of its length from the stomach appeared to be hard and extremely congested, dark red in color, and presenting to the touch a boggy or sausage-like feel, retaining any indentation made upon its outer surface as though it were filled with feces. This effect seems to be due in part to the hardening effect of the carbolic acid by its coagulating the albumin, and in part to the thickening of its walls; for on opening the gut the mucous membrane was so deeply corrugated and thickened that its folds filled and reduced the lumen of the gut to such an extent that it was almost obliterated and contained only a very small amount of soapy-colored fluid of strong carbolic odor. The mucous membrane in parts was of a dirty yellowish-white color, in parts of a pinkish boiled-salmon color. The affected intestine seemed very much heavier than normal, probably due in part to the excess of water in its tissues. Bearing in mind the strong affinity which carbolic acid has for water, it might have been of interest to weigh the six feet of empty intestine so seriously affected, that we might compare its weight with that of an equal length of healthy intestine to get an approximate idea of how much water may be taken up by the acid under such conditions. To this end chemistry and the microscope would be more perfect aids.

The external appearances of the stomach were the same as those of the small intestine. It contained two ounces of opaque, light coffee-and-milk-colored fluid (with slight flocculent sediment of a yellowish cast) and smelling strongly of carbolic acid. The gastric walls were thickened and hardened, and the stomach as a whole was very markedly contracted. The mucous membrane was of a dirty yellowish-white color, roughened, and so deeply corrugated that it reminded one strongly, when turned inside out, of the convolutions of a brain; as one physician present aptly suggested, "his brains were in his stomach, and no wonder he died."

The mucous membrane of the esophagus was thickened, hardened and whitened but not markedly corrugated, and it looked like the surface of a wet, white, kid glove.

The spleen was more than twice its normal size, its capsule thickened, its surface of a light whitish-blue color. On attempting to remove the spleen it tore

¹ Read before the Massachusetts Medico-Legal Society, February 2, 1898.

readily. Its tissue presented a deep purplish color, and was so much softened that it dropped to pieces by its own weight.

The kidneys were deeply imbedded in fatty tissue; they were slightly enlarged and moderately congested. The capsules were easily removed. The anterior surface of the fatty tissue surrounding the right kidney had over an area of two by three inches, a light brown, dried, cauterized, granular appearance where it lay in contact with the small intestine, showing that the effect of the carbolic acid had passed through the intestinal wall.

The liver was hypertrophied, but quite normal in color.

The gall-bladder was fully distended with a pale, thin, green, biliary fluid. The bile-duct contained two gall-stones, each the size of a hazel-nut.

The urinary bladder contained one and one-half ounces of pale yellowish urine, of acid reaction.

Just anterior to the prostate gland was a firm and very narrow stricture, which I learned later had been causing him much trouble. I was very much impressed by the fact that the pelvic and abdominal cavity throughout was noticeably free from moisture, as were also the pleural cavities and the pericardium; all these parts were exceptionally dry.

There were extensive and very general, firm, fibrinous adhesions of the pleura of the right lung to the chest wall and to the diaphragm, which, in turn, was firmly adherent to the liver. On the surface of both lungs there was considerable bluish-black pigmentation of carbon deposit. The same pigmentation was sprinkled throughout the lung tissue. Some post-mortem hypostatic congestion of the posterior part of the lower lobes was seen; otherwise the lungs were not congested, but considerable mucus was found in the larger bronchial tubes, especially at the bifurcation of the trachea, where the mucus was thick, ropy and of a reddish cast. The mucous membrane of the trachea was reddened throughout its lower half, where it lay in contact with the esophagus.

The pericardium was normal. The heart was hypertrophied, and there was excessive fatty degeneration of the same. The left ventricle was firmly contracted. The right ventricle was flaccid; its muscular tissue had a pale lavender color, and was very friable as were also the columnæ carneæ. The valves were all normal. The veins were well filled with fluid blood; the arterial system was quite empty.

The blood was everywhere thin, black and fluid; not a trace of a clot to be found anywhere.

The head was not opened.

With the exception of the evidence of an old pleurisy, we find here some of the pathological conditions which are attributed to the habitual and excessive use of alcoholic stimulants blended with those quoted as directly referable to carbolic-acid poisoning; the latter being the extreme general pallor of the skin, the condition of the alimentary canal as described, the contracted pupil, the firmly contracted left and the flaccid right ventricle, the very dark and perfectly fluid condition of the blood everywhere, the reddened mucous membrane of the trachea and excess of thick mucus there found; and, may I not add, though I have nowhere seen it mentioned by any author, the peculiar freedom from moisture of the pelvic, abdominal and pleural cavities and the pericardial sac. This I suggest as a post-mortem effect of a large dose of pure carbolic acid

which it might be well for us to consider in our future cases, and which some one of you may have already noted, though I can find no reference to it in any work on toxicology. Some authors, Witthaus and Becker, for example, are most lamentably brief and incomplete in their description of the post-mortem appearances, while some others are inclined to be too dogmatic and not broad enough in their description of post-mortem effects of this poison.

The contents of the stomach answer all tests for carbolic acid; though from the one and one-half ounces of urine which was collected from the bladder I could not only discover no smell of carbolic acid but on standing exposed to the air for three days it never changed to the olive-green or other shades so frequently referred to in text-books, and upon which so much stress is laid as characteristic of carbolic-acid poisoning. On agitating it with ether I could not, on evaporating, get the slightest smell or trace of carbolic acid.

I believe that in most doubtful cases of carbolic-acid poisoning, accompanied with retention of urine, and in cases when death is not so rapidly fatal as in this, we are more likely to find the carbolic in the urine.

THE BUTTERS HOMICIDE AFFAIR.¹

REPORTED BY GEORGE E. TITCOMB, M.D., CONCORD, MASS.,
Medical Examiner.

On the 4th day of September, 1897, J. M. Harris, aged forty-eight years, came to Concord from Waltham, arriving at a few minutes after 12 o'clock, noon. He proceeded to the house of G. S. Butters, in which were Mrs. Butters and her son Carl, shot and killed Mrs. Butters, fired two bullets into Carl and one into his own head. At between 12.30 and 12.40 P. M. of the same day, I was summoned, by telephone, to go in haste to the Butters house, about one-eighth of a mile distant from my office. On my way to the Butters house I met Carl with blood upon his face, neck and clothing. He exclaimed that his mother had been murdered.

At my arrival upon the scene, I found Mrs. Butters lying upon the kitchen floor, dead. Harris was in the adjoining shed, sitting upon the floor, with blood oozing from a bullet wound in the right side of the head and from his nostrils. On a line with the floor of the orbit, this wound was about one inch above and one inch beyond the external border. The edges of the wound were blackened and charred. Harris seemed somewhat dazed and under the influence of alcoholic stimulants; but when asked if he shot Mrs. Butters, replied, "I am twenty-one, as well as you." Harris and Carl were sent to the Massachusetts General Hospital for treatment.

I found upon inquiry that Harris entered the Butters house by the shed door; had some conversation about money with Mrs. Butters and Carl in the kitchen. Carl sat down and began to write, with Mrs. Butters and Harris standing. Carl heard a report, saw his mother fall, arose, received a shot, staggered, when he received a second shot and fell. As he again arose, a third shot was fired at him, but the bullet entered the body of Mrs. Butters. Harris then sent a ball into his own head.

At 7.30 o'clock in the afternoon of the day of the

¹ Read before the Massachusetts Medical-Legal Society, February 2, 1898.

murder, I made an autopsy. The body was well nourished. Rigor mortis was present. Blood stains were upon the forehead, and blood was in the nostrils and in the wound in the left side of the head and over the left side of the head and face. Blood stains appeared also upon the fingers of the right hand. There was a wound in the right side of the body between the seventh and eighth ribs, two and a half inches below the right nipple and one inch to the right of it.

Internal examination: About a pint of blood was found in the upper part of the abdominal cavity. A bullet entered the right side of the body between the seventh and eighth ribs, as noted in the description of the external wound, passed through the anterior part of the right lobe of the liver, lacerating the under side of the left lobe, thence to the stomach, perforating the anterior wall twice near the pyloric end; thence to the ninth rib on the left side, fracturing the same one and a half inches from its attachment to the costal cartilage. This ball was found in the tissues between the fractured rib and the outer surface of the body.

External to the wall of the uterus there were two small fibroid tumors. The kidneys were contracted. Other than this the organs of the abdominal and thoracic cavities were practically normal.

There was a bullet wound midway between the external canthus of the left eye and the lower end of the lower lobe of the left ear. A director was passed through this wound four and a quarter inches inwards, downwards and backwards. When the cranium was opened, the dura mater was seen to be normal. Clotted blood lay under the pia mater, between the convolutions and in the cavities of the brain. There was a comminuted fracture of the basilar process of the occipital bone and the bullet had lodged in the soft tissues to the right and below. The bullet did not enter the cranial cavity. It came in contact with the basilar process on the under side.

From the evidence obtained I come to the conclusion that the bullet which entered the left side of the head of Mrs. Butters was the one which she first received and the one which caused her death, that being the side of the body presented to the assailant when the first shot was fired. As Mrs. Butters fell she turned over upon her back presenting the right side of her body to the assailant, and the ball which entered this side was probably intended for Carl, as he was between his mother and the murderer when fired at the third time.

I find from the hospital records that when Harris entered, there was no vision in the right eye; no paralysis and no head symptoms. Observations with the x-rays gave negative results. On September 10, 1897, the right eye was removed and a shaving of a bullet was found in the substance of the lower lid.

Carl stated that the shooting occurred when his assailant was about four feet away. There were powder grains in the side of his face. Just outside the left ala nasi, there was a wound with ragged blackened edges. Another wound of entrance was found just outside the left sterno-mastoid, about one inch and a half from the clavicle. The x-rays showed one bullet near the transverse process of the vertebræ on the right side, close under the angle of the jaw; the second bullet was located just above the clavicle and outside the sterno-mastoid on the right side. There was no special disturbance from these bullets.

Harris at his preliminary hearing pleaded not guilty.

He was indicted in October, 1897, by the grand jury. He was arraigned in December, 1897, and pleaded not guilty. January 10, 1898, he pleaded "guilty of murder in the second degree" and was sentenced by the court to imprisonment for life. At this session of the court, District Attorney Weir, after giving a brief account of the crime, stated the position of the prosecution, as follows:

At the last October term, the grand jury for this county returned into court an indictment against Harris charging him with the murder of Mrs. Butters. To this indictment he has now pleaded that he is guilty of murder in the second degree. The attorneys for the Commonwealth, after careful consideration, have decided to accept this plea. They do this because they believe that the evidence does not warrant a finding beyond a reasonable doubt that the act of Harris was done with that deliberate premeditation which, if the case was tried, would justify a jury in returning a verdict of guilty of murder in the first degree. They believe that the evidence indicates that Harris was acting upon an impulse of the moment rather than upon any pre-arranged plan. There can be no doubt that Harris's attempt to take his own life was genuine. He was so seriously wounded that it was thought for a time that he might not recover. The bullet entered his head and has not yet been extracted and he has thereby lost the use of one eye. The fact that besides attempting suicide, he tried to kill two persons with whom he had been on more or less friendly terms has some tendency to show a want of deliberation. It is now known that it had been the custom of Harris to carry a revolver, and the fact that he had one with him on the day of the murder does not, therefore, of itself prove premeditation.

Since his confinement in jail he has been carefully examined by two experts on mental diseases, one, Dr. Jelly, of Boston, at the request of the Commonwealth's attorneys, and the other, Dr. Cowles, of the McLean Hospital, at the request of the counsel of the defendant. The physicians agree that he was sane at the time of the murder and is now sane, but they both admit that, considering all the circumstances, he might have been acting more or less automatically at the time, because of his long continued use of alcoholic stimulants and because of his excessive use of them on that and the preceding day, and they cannot say that he was not so acting. The Commonwealth has no evidence which can materially control the inference to be drawn from the facts of the case as here presented that Harris was acting upon impulse rather than from any pre-conceived purpose. There seems, therefore, to the prosecuting attorneys to be a want of proof of that deliberate premeditation which is and should be required in all cases before a verdict of guilty of murder in the first degree can be justified. For this reason the plea of guilty of murder in the second degree which Harris now makes and which means that his punishment is to be imprisonment for life is accepted. This decision, if it is right, means that a trial is now unnecessary and that the county is legitimately relieved of the great expense of a murder trial. It is also proper to state at this time, that Mr. Butters, the husband of Mrs. Butters, and their son, Carl, approve of this disposition of the case.

Mr. Adams spoke briefly for the defence, stating that the defendant's plea was made on the advice of his counsel, and that the end would probably be the same if a trial was held. Judge Fessenden then imposed sentence.

THE NEXT INTERNATIONAL MEDICAL CONGRESS.—M. Félix Faure, President of the French Republic, has consented to preside at the first session of the International Medical Congress to be held in Paris in 1900.

CHOLIN, THE ACTIVE PRINCIPLE IN FLORENCE'S TEST FOR SEMEN.¹

BY WM. F. WHITNEY, M.D., BOSTON.

AT the meeting of the Society a year ago, I presented the results of my investigations² of the iodine test for seminal stains first published by Florence³ and which he regarded as the reaction of an alkaloidal substance peculiar to the semen, which he called "virispermin." Since then the subject has been studied by Richter,⁴ who has shown that it is not a specific substance, but one of the products of the decomposition of albuminoid material, namely, lecithin, or perhaps more properly one of its products, cholin, which gives the reaction.

He has been able to obtain the test crystals from portions of all of the organs of the body, white of egg, etc., which have been allowed to decompose, as well as from the isolated chemical substances themselves. I have also obtained them from the adrenal gland (which contains lecithin in a relatively large per cent.) by allowing it to stand at the room temperature for twenty-four hours and then testing the fluid expressed from it.

The semen, however, still seems to be the only secretion in which this substance is always formed quickly and in large amounts after drying, and therefore these observations do not impair the value of the test as a preliminary one; for by it those stains can be readily picked out on which time should be spent in searching for the only positive proof of semen, namely, the spermatozoa.

Medical Progress.

PROGRESS IN PUBLIC HYGIENE.

BY S. W. ABBOTT, M.D.

(Concluded from No. 16, p. 372.)

HOUSEHOLD DISINFECTION FROM A SCIENTIFIC AND PRACTICAL POINT OF VIEW.⁵

AT a recent meeting of the German Society of Public Health, the two principal disputants upon this topic were Professor Dr. Esmarch, and Burgomeister Zweigert of Essen.

Dr. Esmarch's propositions were as follows:

(1) The propositions stated in 1890 by Professor Gaffky, and discussed later in the German Public Health Society, in regard to household disinfection may be regarded as correct to-day in every particular.

(2) Meanwhile, many districts have established arrangements by which disinfection of dwellings is made possible.

(3) The methods and regulations for the disinfection of houses in practice up to this date are susceptible of improvement in several directions, as follows:

(a) In the regulations for household disinfection as

¹ Vierteljahrsschrift für öff. Gesundheitspflege, 1898, vol. xxx, p. 156.

² Read before the Massachusetts Medico-Legal Society, February 2, 1898.

³ The Identification of Seminal Stains, Boston Medical and Surgical Journal, 1897, No. 14.

⁴ Du sperme et de tâches de sperme, Arch. d'Anthropologie Criminelle, tomes x et xi.

⁵ Du mikrochemische Nachweis von Sperma. Weiner klinischer Wochenschrift, 1897, No. 24. Die Spermaprobe von Florence, Zeitsch. f. Medizinalbeamte, 1897, No. 24.

well as in its execution greater attention should be paid to the nature and mode of spread of the different infectious diseases, as well as to the local conditions; under certain circumstances, disinfection may not be necessary for the whole dwelling, but may be limited to the sick-room.

(b) The extent of the disinfection should be determined as far as possible by medical authority.

(c) Greater care should be taken, that the right time be chosen for disinfection, in order that a new infection of the dwelling may not follow the disinfection. In the case of cholera and diphtheria this can be decided by bacteriological examination. In other infectious diseases it must be determined upon medical authority.

(d) Care should be taken during disinfection, that the infection is not spread by the other occupants of the dwelling.

The burden of Zweigert's argument was to show that chemical and other special means of disinfection are not essential and that thorough scouring of surfaces of rooms and airing them is sufficient. He believed that science by means of bacteriological investigations should present more exact proofs that disease germs are actually present upon the ceilings, walls and floors of rooms during and at the close of cases of illness from infectious disease, and that they cannot be destroyed by simple scouring and airing of these apartments. He also urged the necessity of prompt notification of all infectious diseases by the attending physician, both as to the first occurrence of cases, and also as to the end of the illness when disinfection should take place.

The lively discussion which followed these propositions showed that the weight of opinion was not with Zweigert. Staff-Surgeon Pfuhl, of the German Army, could not agree with Zweigert, and said that airing rooms only removes the foul odor and the moisture, but does not destroy disease germs. Professor Pistor believed that new and efficient methods of disinfection should be adopted by local authorities without the necessity of waiting for legislation to introduce them.

Dr. Esmarch, in conclusion, urged the need of discrimination in regard to the disinfection of whole houses, or only the rooms occupied by the sick. He stated that houses are now in use in some German cities to which families can be temporarily moved while their own habitations are being disinfected.

The liability of physicians to become conveyers of infection having been suggested, he stated that much greater care is now taken by the profession to prevent its transmission. Many cases of infection occur through the medium of public conveyances.⁶

He alluded to the necessity of greater care in cleansing the lower half of the walls of rooms than is required for the upper half. But the character of the disease and the liability to spread through the medium of dust occasionally require equal care to be taken with all the surfaces of the room. The disputant closed by commending the use of formaldehyde.

FORMALDEHYDE DISINFECTION.¹⁰

Walter enumerates the following advantages and disadvantages of disinfection by formaldehyde:

⁶ Out of a dozen cases of small-pox occurring in Massachusetts in the past two years, three or more were cleaners of Pullman cars. Small towns in Massachusetts located upon railway lines are found to suffer more from infectious diseases than other towns of equal size not so located. — Ed.

¹⁰ Zeitschrift für Hygiene, vol. xxvi, p. 454.

Advantages.

- (1) Certainty of disinfection without injury of objects.
- (2) Easy connection with existing apparatus for disinfection by steam.
- (3) The formaldehyde can be collected in water and used again in the form of a solution.

Disadvantages.

- (1) For operation with increased pressure, the apparatus must be strong, under police control and requires an expert to direct its operation.
- (2) It is doubtful whether, in a room of large extent, the formaldehyde gas will reach the walls with sufficient concentration and intensity to be effective.
- (3) Disinfection of clothing cannot be performed in the dwelling, but it must be removed for that purpose.

The principal results of the critical, experimental work may be summed up as follows:

- (1) We cannot, with formaldehyde, disinfect a room and all its contents in one operation, no matter how the gas is developed.
- (2) Nevertheless, disinfection by formaldehyde constitutes a valuable addition to the general means of disinfection.
- (3) Streaming formaldehyde is not a mere surface infectant.
- (4) It is practicable by this means to disinfect clothing, uniforms and other articles, effectively and without injury.
- (5) The present methods admit of technical improvement.

ON THE EXISTENCE OF TUBERCLE BACILLI IN BUTTER.¹¹

Dr. L. Rabinowitsch reviews this question, and shows considerable variability in opinion upon the subject. Galtier made cheese from milk in which he had mixed tuberculous matter, and the inoculations of this cheese caused tuberculosis. Heim mixed tuberculous bacilli with butter and found that the inoculation of this butter produced tuberculosis as late as 30 days afterward. Gasperini found that the bacilli remained active for 128 days. Bang proved that butter made from milk of cows having advanced mammary tuberculosis is infectious. The following experimenters inoculated guinea-pigs with butter bought in the markets, with results as stated: Brusaferro produced tuberculosis with 1 specimen out of 9; Roth with 2 out of 20; Schuchardt with 1 out of 42; Gröning with 8 out of 17; Obermüller with 14 out of 14.

Rabinowitsch made inoculations representing 80 specimens of butter obtained in Berlin and in Philadelphia. The inoculations of guinea-pigs amounted to 119. In none of these cases was satisfactory evidence obtained of genuine tuberculosis. But in 23 specimens lesions were caused in guinea-pigs, which both macroscopically and microscopically appeared like genuine tuberculosis, but could be distinguished from it on close analysis.

The author admits that the dangers of transmitting tuberculosis through the medium of cheap butter are not serious, and the positive results obtained by the other experimenters admit of the same explanation. The investigation appears to have been suggested and investigated by Koch himself.

¹¹ *Zeitschrift für Hygiene u. Inf. Krankheiten*, 1897, xxvi, p. 90.

CIDER AS A CULTURE MEDIUM OF DISEASE-GERMS.

Dr. Vigot,¹² of Caen, has investigated the question whether the typhoid bacillus and the colon bacillus can survive and continue to be pathogenic in cider taken from the press, before fermentation. This question arose in consequence of a custom, prevalent in Normandy, of using very filthy water, under the pretext of giving a better taste to the cider. Neither the typhoid nor the colon bacillus would grow in pure cider, or cider diluted with distilled water, and inoculations of animals were, except in one instance, harmless.

The author discusses the cause of this circumstance, and concludes that it is not the acidity, but the fermentation which hinders the growth of the bacilli, and that when the bacillus is found, the cider has been diluted, with the water containing the bacillus, after fermentation has occurred. Hence there may be a danger here which has been overlooked in localities where the dilution of cider with filthy water is a common custom.

FATAL CASE OF LEAD-POISONING.¹³

A supply of water for a private house was taken from a spring by means of a lead pipe attached to a pump about 175 feet distant. The plumber who laid the pipe allowed a considerable amount of lead filings to remain at the joints which were soldered in the usual manner.

Soon after the work was completed a young woman at the house was taken ill, and the father and mother suffered severely with colic. The girl died, lead-poisoning was suspected, and a government investigation was made. The autopsy demonstrated lead in several organs, and the water, which was exceedingly pure, was found to have dissolved 0.95 mg. per litre. The hardness was only 1.4.

SCHOOL HYGIENE.

Considerable doubt has been raised as to the efficiency of systems of heating and ventilation, in which such systems include the methods of disposal of excreta, especially in the warm season, when the general heating apparatus is not in operation and other fires are apt to be neglected. The following quotation¹⁴ has a direct bearing on this subject:

"The sole dependence of the system, therefore, lies in a continuous current of air from the rooms, through the closets, and up the vent shaft. The natural flow must, of course, be in this direction, the aspirating power of the vent shaft being depended upon to furnish the motive power. If by any chance the fire in the stack heater goes out, then there is liable to be a reversal of the current.

"In only one instance, however, did I find the fire out in the stack heater, due evidently to carelessness on the part of the janitor, who has since been removed. In general I found good fires in the stack heaters, so that whatever defects were found in the system could hardly be attributed to this source.

"To my mind the most serious defect seems to have been the attempt to combine at all this system with that of heating and ventilating, systems which are diametrically opposed to each other and which have no connection between them. For why should we be

¹² *Tribune Médicale*, August 18, 1897, p. 648.

¹³ *Gesundheits-Ingenieur*, March 31, 1897, p. 87.

¹⁴ Report of the Health Officer of the District of Columbia, 1897, p. 68.

constantly running the danger of a backward draught; and why should the teachers and pupils be constantly blockaded behind closed doors and windows when there is no necessity; and why should the atmosphere be poisoned and the soil polluted merely for the sake of retaining excreta upon the premises?

"With this part of the system removed, back draughts lose part of their terror."

Reports of Societies.

SURGICAL SECTION OF THE SUFFOLK DISTRICT MEDICAL SOCIETY.

PAUL THORNDIKE, M.D., SECRETARY.

REGULAR Meeting, Wednesday, March 2, 1898, DR. H. L. BURRELL in the chair.

DR. J. E. GOLDTHWAIT showed some tracings taken from the heads of infants and showing the distortion of the base of the skull which may result from a faulty position continued for a considerable length of time.

DR. F. S. WATSON showed a patient upon whom he had performed the combined operation of suprapubic and perineal prostatectomy, together with the specimen, a full report of which will appear in the next issue of the JOURNAL.

DR. G. E. BREWER, of New York, read a paper entitled

SOME OBSERVATIONS UPON IMPROVED ASEPTIC TECHNIQUE.

In this paper the writer gave the results of a series of experiments undertaken to improve the technique at the New York City Hospital. The reason for undertaking the investigation was the frequent occurrence of suppuration in presumably aseptic operative cases.

The first year was devoted to improved methods of hand disinfection, improved methods of sterilizing the ligature and suture material, improved methods of disinfecting the patient's skin and preventing errors in technique.

The second year was devoted to a thorough bacteriological investigation of methods and material, which showed a number of possible sources of wound infection, including the hands of the operator and assistants (which it was impossible to sterilize by any of the well-known methods), the skin of the patient, the dressings, towels, sponges, etc., and the air of the operating-room, which was found to be badly contaminated.

A number of changes were made in the technique formerly employed, the most important of which was the adoption of rubber gloves by the operative surgeon and all assistants. These it was found could be sterilized by boiling for five minutes.

A marked improvement in results followed these changes in technique.

The third year was devoted largely to the perfection of methods already introduced, and to a systematic study of the antiseptic value of formaldehyde and its preparations.

DR. HARRINGTON: The paper has been a very interesting one. Dr. Brewer's methods show a great deal of care and persistence. One cannot find fault with any method which improves our results. I never myself have used gloves, although I have seen them used at the Massachusetts Hospital. In the effort to

obtain aseptic wounds it has always seemed to me that one of the most important things was to keep the operator's hands and the assistants' hands out of the wound as much as possible. The use of gloves of course will do this, but there is undoubtedly a loss of tactile sense. One can accomplish a great deal by careful attention to the use of instruments instead of the use of the fingers. One is very much inclined to put the hands into a wound oftener than is necessary; at the same time it is often necessary to do this, and if we are going to get an improvement of two per cent. in asepsis by the use of gloves, and no loss in other respects, I think we should use them whether they are a source of inconvenience or not. Dr. Brewer's statistics of septic wounds sound worse than they are, because he includes in septic wounds all stitch suppurations which hardly can be said, as a rule, to interfere with the result of the operation. Personally, I do not like to use any kind of antiseptics in aseptic wounds after the first incision, nor do I like to use drainage in such cases.

DR. R. M. PEARCE: In my first experiments on the sterilization of catgut with formaldehyde, the agent was applied by vaporizing small amounts of the 40-per-cent solution (formalin), into a glass chamber in which the catgut was exposed. Every experiment was eminently successful so far as sterilization itself and alone was concerned; but as sterility must not be obtained at the cost of strength and flexibility, these qualities must be taken into account. It was found that exposure to a moist atmosphere containing formaldehyde (and one containing vaporized formalin is necessarily moist) was very injurious to the smaller sizes. In fact, some skeins became so brittle that it was impossible to tie a hard knot in them since the mere drawing up of the knot was sufficient to break the gut.

I next tried the solid pastilles of paraform, heating them in the Schering lamp and conducting the vapor directly into the space in which the catgut was enclosed. This process gave exactly the same results in every way; the sterilization was perfect, but the atmosphere was moist from the water derived from the combustion of the alcohol in the lamp, and the strength of the gut was impaired as before.

Neither of these processes, therefore, was of the slightest practical use so far as the small and most commonly used sizes were concerned.

Believing that the moisture had much to do with causing the diminution in strength and flexibility, I determined to try the gas in a dry condition. But first I thought it best to see what effect, if any, the gas would have on strength. A preliminary series of strength tests indicated that injurious effects were improbable.

Then, well-handled specimens of catgut were exposed. Control cultures yielded abundant growths. Cultures taken at the end of one, two and three days yielded no growth, showing that whatever organisms there were in and on these specimens had succumbed.

In order to make the test as severe as possible, I determined to try the experiment of infecting different sized skeins of catgut in the most thorough manner with the most resistant pathogenic organisms, and then subject them to the action of the dry gas. The skeins, cut into inch pieces, were soaked for a week or ten days in bouillon cultures of sporulating anthrax. They were then withdrawn and divided into two equal portions, one of which was gently dried over night,

the other being left in its wet condition. Control cultures showed very active growth, not alone of anthrax, but of other organisms which had been introduced by the catgut. The wet and dry specimens were then exposed to the dry gas, and pieces of each size, wet and dry, were planted at the expiration of twenty-four, forty-eight and seventy-two hours. With the exception of a growth which was obtained from a single specimen of the wet cultures after twenty-four hours' exposure, every culture was perfectly sterile. Next, a number of skeins of different sizes were exposed ten days, and others twice that time to the dry gas, and then tested as to strength and flexibility. Several hundred (481) tests made with sterilized and unsterilized gut, each test being of a piece about five inches long with a knot in the middle, showed that the dry gas acts only in the direction desired.

The application of the dry gas, besides giving perfect results in both directions, possesses the additional advantage of utmost simplicity. In other processes of sterilization, more or less manipulation, time, apparatus and after-treatment are required. With this method nothing is required but a wide-mouthed jar, some paraform pastilles, a piece of wire gauze or open-meshed cloth, and a small beaker or wide-mouthed bottle. In my experiments, two sizes of jars were used with the same results. In the smaller, a dozen pastilles were put at the bottom, and covered with a piece of wire gauze to prevent actual contact with the gut. In the larger, a dozen pastilles were put into a small beaker covered with gauze.

The pastilles yield to the surrounding air within the jar a very considerable amount of gas, sufficient at least for complete sterilization.

I send with this the larger of the two jars used by me. The other had a capacity of about three pints.

DR. LOVETT: It seems to me that in any discussion on asepsis we must remember that asepsis from a bacteriological point of view is a relative rather than an absolute term. There are so many factors entering into it, so many sources of wound infection, that it is a problem that cannot be dealt with in a scientifically accurate way. Researches have shown that the majority of wounds that heal by first intention contain bacteria; and that these bacteria are virulent has been shown by cultures taken from wounds that have healed by first intention, so-called aseptic wounds. Consequently the question seems to be one of limiting the dosage of bacteria; and I think Dr. Brewer's paper is valuable in showing certain directions in which we can limit that dosage. There are certain factors coming into operative procedures which may be classed as sources of infection. Those are (1) the material, (2) the hands of the surgeon, (3) the skin of the patient, (4) the question of infection by micro-organisms floating in the air, and (5) the question of accidental infection during operation by assistants through carelessness, improper training or lack of organization.

(1) With regard to the material. At the City Hospital I think it has been pretty definitely proved that we are using sterile material. There are two or three practical matters that I thought might be of interest to mention that have come out of a certain amount of experience in the sterilizing room. In the first place, I think it is exceedingly important that in a large hospital a record should be kept of all sterilized material, and that all sterilized material should be vouched for. The method we have instituted is this: the sterilizations

are numbered consecutively, and the date and the time of each sterilization are recorded and the temperature reached. Each bundle of material is numbered. These sterilizations are recorded in a book consecutively. The material is all sterilized a second time and numbered with the number of the second sterilization, and the second sterilization is also entered in the book. Then a book of operations is kept, and all the material used at the operation is entered by the number in this book. If I do a hernia and that hernia goes wrong and I have reason to believe I used infected material, I have an opportunity of tracing every bit of material used and seeing the date that it was sterilized, the length of time and the temperature reached. A point that came up in the investigation I think is worth insisting on, namely, that it takes a good while to raise the temperature of the middle of the load.

A lot of cold cotton sheets and sponges are packed into the sterilizer and the temperature is necessarily slowly raised in the interior. In some work we did at the hospital—perhaps before we understood the sterilizer perfectly—it seemed to take in the neighborhood of twenty minutes to get up the temperature of the inside of the load, and the only temperature we allow the sterilizing nurse to record is the temperature registered by a self-registering Centigrade thermometer in the interior of the load, not the temperature on the gauge on the outside. The nurse in charge is required to show a temperature of 115° C. in every sterilization and to maintain that one and a half hours. That is excessive and may be damaging to the material; but it certainly, as far as we can tell, yields sterile material. Samples of sterile material are examined bacteriologically once a week.

Another thing we came in contact with was the question whether stitch abscesses were evidence of infected suture material, and, as Dr. Councilman called to my attention, this is not the case, since perfectly sterile suture material may give rise to stitch abscesses, as the localization of a slight general wound infection.

(2) The skin of the surgeon. Of course, there is no question about the superiority of rubber gloves from the bacteriological point of view.

(3) With regard to the skin of the patient it seems to me that we have there a source of infection very hard to eliminate. I was interested in some experiments of Lannestino that are probably familiar to you, where he cut out a number of pieces of skin without sterilization and found bacteria. Specimens of sterilized skin were taken similarly and a large proportion of them after sterilization contained bacteria. They were sterilized three days with soap and water, alcohol and ether and turpentine. That is discouraging in our attempts to sterilize the skin of the patient.

(4) The question of air infection is of a great deal of interest; and a certain number of experiments with agar-agar plates that I made tended to show that we had certain forms of pyogenic organisms in the air, but that the number varied greatly under different conditions. There is a recent paper by Pfluger on air infection and mouth infection in which he showed pretty conclusively that there was possibility of infection from the mouth and breath. He took into his mouth some cultures of the bacillus prodigiosus and found that after coughing and sneezing and loud talk these bacteria were projected a distance of several metres. During ordinary conversation and ordinary breathing they were unable to obtain cultures.

(5) The infection by imperfect organization or carelessness needs only to be mentioned to be avoided.

DR. GOLDTHWAIT: Dr. Bradford expected to be here to speak for the Children's Hospital, but he was detained and telephoned to me, asking me to briefly state the peculiarities of the aseptic methods there. Of course, the general principles must be very largely the same in any institution, and it seems to me that the things in which especial difference is found in a child's hospital are, in the first place, that the operation wound is of necessity very much nearer the regions of infection than is apt to be the case with the adult. A foot is nearer the rectum or vagina and the arm is nearer the mouth, etc.; so that unusual precautions are taken to protect the whole surface of the child, the whole body being dressed in aseptic clothing before it is put on the operating table. The child being smaller is more easily rolled or moved about and by being dressed in this way the danger of uncovering a portion not sterilized is lessened. Also, in cases where very great precautions are necessary a union suit is used, and the incision made directly through the suit, that having been sterilized before it is put on. The table is a specially prepared one, so that there is free drainage; and the parts on which the patient lies and with which the surgeon comes in contact are movable, and can be sterilized each time before using. Care is taken with children that drainage is free, so that the disadvantage of having a child lie in wet clothing is removed as much as possible. Aside from this, it seems to me the methods there are similar to those in other institutions.

DR. ELLIOT: I am pleased that Dr. Brewer has brought up this subject. I think there is no doubt that rubber gloves are a great improvement. I used them all last summer with the greatest satisfaction. I think it is practically impossible to keep your staff clean when the hospital is full of appendicitis and complicated wounds. Everybody there is working at high pressure. Beside rubber gloves I have used with great satisfaction sterilized cotton gloves, which I like really better. I have had only one accident with rubber gloves, I missed a gall-stone operating with rubber gloves. I should have taken my gloves off for a gall-stone operation, but I had an infected finger at the time. It being the first gall-stone I ever missed when my finger was really on it, I attributed it to the rubber gloves. I shall not try to do that particular operation again with rubber gloves. Other operations I have had no difficulty with nor cause for complaint with gloves.

There is another point of view worth considering in this connection and that is the protection to surgeon's hands. Having suffered from a septic infection without having even scratched my hands, I made up my mind that gloves were necessary to protect the hands of an active surgeon from the wear of scrubbing with antiseptic solutions. I found that with the corrosive disinfection all the fat in the hands was dissolved out, and hence the hand deprived of a natural protection is more easily infected by contamination with pus. If you are operating four hours a day, as most men are in a large hospital, your hands are soaked most of the time and few men have the epidermis to stand that. The nails and hair wear off, the skin wears down, the epithelium wears off, so that a very slight scratch goes through. We have not the protection nature intended us to have in the epithelium. Without any scratch whatever I have been infected over and over again in

the hair follicles, therefore my experience of last summer and since then has led me to use the rubber gloves in all so-called wet operations where I expected pus and needed a good deal of swashing and antiseptics, and the sterilized cotton gloves in all the dry operations like a breast operation or appendicitis operation in the interval. I have carried out this plan with very satisfactory results both in the way of non-infection of patients and in the way of not using up my hands. I also found that with very dry hands from soaking in corrosive, an ointment of lanolin and a little boracic acid is a very effective protection.

Concerning stitch abscess, and even before bacteriologists showed that the skin held germs in spite of disinfection, I discovered that the aseptic stitch was not satisfactory. I have always used, and use to-day, antiseptic stitches, stitches soaked in corrosive sublimate for a week or two. All but the finest silk will not deteriorate by three weeks in strong corrosive solutions. Even with an antiseptic suture it is very important not to tie it tight. If you tie a stitch very tight it will suppurate in five or six days. I have repeatedly sewed up one half of the wound myself and allowed the house-surgeon to sew up the other half and have noticed that only the tight stitches irritated, the same material being used for all. I have made experiments as to how long stitches can be left in abdominal wounds. I tried all sorts of materials and left them in varying lengths of time. I found I could leave wire stitches in three weeks or longer, and when they cut the tissue healed behind. I found sterilized silk usually had to be taken out in eight or nine days. I found that antiseptic silkworm-gut kept in corrosive could be kept in two weeks and longer. The tighter a stitch is tied the greater the danger of a stitch abscess. If you strangle a bit of skin with bacteria in it they are bound to become active.

I think there is no doubt that mouth infection at the operation is a very important thing which has been neglected, so that not much talking should be allowed over an operation—not much loud talking or profanity. I think that rubber gloves or some gloves have come to stay. I do not propose to do another hospital service without gloves.

DR. RICHARDSON: Since seeing Halstead using gloves two or three years ago at Baltimore I have considered the feasibility of it very seriously. I don't know but we are going to be forced to use them in spite of our great reluctance to do so. It seems to me that with an active hospital service, with the present complicated methods of preparing the hands, with the thrusting of the bloody hands into antiseptic fluids, with the constant irritation of the skin by irritating chemicals we get the hands into a state in which it is more and more difficult to keep them clean. Whether it is absolutely necessary both for the protection of the patient and for the protection of the hands to use gloves, I for one am open to conviction. I don't wish to use either rubber or cotton gloves, for it seems to me a very serious disadvantage in operations in which the tactile perceptions should not be in the least impaired; on the other hand, for the surgeon's own protection and for the protection of his patient it seems essential at times to put into the wound nothing but what has been baked or boiled, and of course the hands cannot be thus treated. The percentage of infections to-day is extremely small, whether from the unimportant stitch abscesses or in the fatal infections which

occasionally take place, for instance, in clean operations like hysterectomy, although that operation is not essentially a clean operation as some others are. I should like to be convinced that it is not necessary to use gloves, and yet I feel that to go from an acute general peritonitis, in which the infection may be of the most virulent form, to a clean operation, like removal of the breast, was a danger to the patient. I always feel great reluctance to subject the patient to that danger; and yet in those cases which are necessarily strongly impressed upon the memory I do not recollect infection. Yesterday morning I operated at 11.30 on an acute infectious appendicitis, and then operated upon a breast, and put my hands through the most thorough methods, more thorough than usual. I disinfected my hands with the permanganate of potash, oxalic acid and the peroxide of hydrogen and corrosive sublimate; then I went to a private operation in which I used permanganate of potash, oxalic acid and peroxide of hydrogen. I felt as if I might be subjecting that patient to an unnecessary danger, for in the afternoon some hours after the breast operation I still smelt the peculiar odor of acute infectious appendicitis. But in that case there has been no infection; perhaps it is not time yet. I am ready to use gloves. I think, however, we can reduce the dangers of local wound infection to a minimum by being extremely careful about handling the wound, as Dr. Harrington has said. I have been very careful of that a long time, and have done such an operation as removal of the breast and dissection of the axilla without touching the wound either by my own fingers or the assistant's fingers. The wound is touched indirectly by the surface of the gauze which the assistant uses in the wound and to a slight extent in tying the arteries; but those very bloody operations can generally be performed without getting enough blood on the hands to show, and I have applied that method and did yesterday and day before to removal of the acutely inflamed appendix. I was surprised to see that I could take out an appendix without putting my finger into the abdomen at all. That was a chronic appendix. In the acute appendix the day before, we removed the organ without putting the finger into the abdomen. Of course, it is impossible to do that in many cases.

Another thing that seems to me very important. That is absolute hemostasis. I think that all wounds are infected as Dr. Lovett has said: the dosage differs in different methods, but if we can keep it at the lowest by handling as little as possible, having absolute hemostasis by tying everything, in that way we can and do get a very good average result. There remain those occasional cases in which the most careful retrospection, the most rigid self-accusation fails to reveal the source of infection. In such operations as hysterectomy, an operation which to my mind is the one most uncertain of all the abdominal operations, an operation which performed with the greatest care and an operation that perhaps pleases you better than any other, may be the very one which will be fatal in the course of a few days from general peritonitis.

I think this subject is one of the most important and most interesting, and I welcome the discussion. I am afraid we have got to come to the rubber glove or some other method of protecting the hands, but I do not want to do it unless I find that there are many cases in which I cannot prevent infection; I shall

feel inclined to continue for the present in the way I have done for the last five or ten years.

DR. BREWER: I agree thoroughly with those who have spoken of the probable infection of all wounds. I do not suppose any surgical wound exists that is not infected. I do think this, however, that the infection that makes the wound suppurate is an infection that can generally be avoided; and that it is, in my belief, usually carried by the hands provided we have our material sterile. It has been said here that stitch infections are supposed largely to come from the organisms residing in the skin because they occur often with perfectly sterile suture material. It seems to me that we must all recognize the fact that it is impossible to sterilize the hands by any known method, and that we can perhaps better explain these cases of stitch infection by hand contamination. We may have perfectly sterile suture material taken from the bottle, by an assistant — which becomes infected by handling. For several years I thought that stitch infection came from sources that could not be remedied, still the marked diminution in that class of infections after the adoption of rubber gloves led me to believe that in a large number of instances it was due to indirect hand infection. In regard to the use of cotton gloves I do not think they are comparable to the rubber gloves, for the reason that they do not overcome the danger from perspiration and I believe the perspiration is an infectious agent, and most people in a long operation will have a good deal of it. With rubber gloves we have absolute protection from that. I think many sutures do favor suppuration by being tied too tightly and certain materials favor it more than others. I have used for cutaneous sutures almost invariably silkworm-gut, and find if it is tied too tight it will form a stitch abscess. Sutures should not be left in the tissues too long, but I have found with the use of formaline on the outside of the wound, by several layers of gauze wet in a solution of 1 to 50 that silkworm-gut sutures can remain almost indefinitely.

NEW YORK ACADEMY OF MEDICINE.

SECTION ON OBSTETRICS AND GYNECOLOGY, APRIL 7, 1898.

DR. WM. M. POLK, Chairman, made the

FINAL REPORT OF THE COMMITTEE ON THE SEMI-CENTENNIAL CELEBRATION.

In connection with this he presented a framed autograph copy of the address of President Grover Cleveland on the occasion. He said that there remained of the money subscribed for the celebration the sum of \$660, and recommended, on behalf of the committee, that of this, \$160 should be devoted to the publication of the anniversary addresses in the *Transactions* of the Academy, and that \$500 should be set apart as the nucleus of a fund to be known as "The Semi-Centennial Library Fund." The recommendation of the committee was adopted by the Academy.

The subject for the evening's discussion was

UTERINE FIBROIDS.

DR. GEORGE C. FREEBORN read a paper on their

PATHOLOGY,

in which he reviewed the varieties and structure of the growths and the changes and degenerations to

which they are subject. He stated that the largest number of fibroids which had been found in one uterus was 50, and that the largest tumor on record was that reported by Dr. Hunter, the weight of which was 140 pounds. A paper on

FIBROIDS COMPLICATING PREGNANCY,

by DR. HENRY C. COE, was read by Dr. Tucker, Dr. Coe not being able to be present.

Allusion was made to the difference of opinion held by various authorities as to the significance of this complication. While some contended that it was almost invariably attended with the greatest possible danger, others went to the opposite extreme of making too light of the danger resulting; and Dr. Coe thought the safest position to occupy was one midway between these two extremes. On account of the diversity of conditions existing in different cases it was impossible to lay down any general rules in regard to the matter; but, from the standpoint of the general practitioner, there were a few definite facts which it might be of service to bear in mind. In the first place, the prevalent idea that conception is rare in women with uterine fibroids was without doubt correct; but at the same time it must be remembered that no variety of fibroid absolutely precluded the possibility of its occurrence. If the myoma were situated in the lower segment of the uterus the chances were greater of conception taking place.

In the case of an unmarried woman suffering from fibroid, he believed it was the duty of the physician to state plainly the dangers likely to arise from pregnancy and warn her against matrimony. Conception having occurred in a uterus affected with myoma, the indications calling for interference were: continued increase in the size of the tumor, hemorrhage and pressure symptoms. The site of the growth was of the greatest importance, and, as a rule, it could be stated that if it were near the fundus it would probably give rise to but little trouble. Possibly there might be no disturbance whatever. Situated in the true pelvis even a small tumor might cause the most serious results. In the case of intra-uterine polypi sloughing almost invariably resulted. It was well to bear in mind, however, that it was almost impossible to predict the sequel even in cases that appeared most threatening. Generally the most imminent danger was from hemorrhage.

The hope that subinvolution after parturition would put an end to the growth was usually fallacious. Pregnancy was by no means a cure. The diagnosis was a matter of great importance to the general practitioner, and the diagnosis, particularly if the fibroids were of the interstitial or submucous variety, was often attended by difficulty. Asymmetry of the uterus was not an infallible sign, for the reason that this condition had sometimes been noted in normal pregnancy. If there were any doubt on the matter, an examination under anesthesia was absolutely called for. There was no doubt considerable truth in the reproach sometimes heard that the gynecologists of the present day have become more careless in diagnosis as they have advanced in operative skill. The excuse offered was that it was now such an easy matter to perform celiotomy and find out the exact condition existing. It was hardly necessary to say that an interstitial fibroid having been recognized, it should be most carefully watched. It was scarcely possible

for the patient to go to full term, and the medical attendant should be prepared to bring on premature labor or perform hysterectomy whenever the circumstances of the case called for one or the other of these procedures.

As a rule, the abdominal was preferable to the vaginal route for the removal of the pregnant fibroid uterus. In some circumstances a conservative myomectomy was advisable. If in any case there was a reasonable doubt about the diagnosis, an exploratory celiotomy should be made. Should the tumor not be discovered until the latter half of gestation, it was better to wait until near term if possible, and then perform Cæsarean section with subsequent supra-vaginal hysterectomy.

DR. WM. M. POLK read a paper on the

SURGICAL TREATMENT.

At the outset he dismissed as having been proved valueless such methods as ligating the uterine arteries. Our reliance, he said, must be placed on hysterectomy and myomectomy; and in the development of the latter method he thought would be found the field for the greatest progress in the future. Having decided in any case that hysterectomy was called for, was the abdominal or the vaginal operation to be selected? The latter was called for, in his opinion, when the size of the tumor was not greater than that of the normal uterus at the fourth month of pregnancy, if the pelvic and vaginal passages were of ample size, and if the uterine appendages were in a healthy condition. Any suspicion of suppurative disease in the ovaries or tubes would at once decide the surgeon in favor of celiotomy. Another complication that called for abdominal section was malignant degeneration of the myoma. The most frequent degeneration of this kind was sarcoma.

In performing vaginal hysterectomy the average operator should have a roomy pelvis and vagina. The normal type was the only one in which the procedure was admissible. A virginal vagina or a male pelvis were each contraindications. Vaginal hysterectomy was, then, preferable in cases with roomy pelvis and vagina, and where there was no malignant complication or disease of the appendages, and where the size of the tumor was not greater than the uterus at the fourth month of gestation. If any of these conditions are present abdominal hysterectomy was to be selected.

In performing the operation the foremost problem met with was the control of hemorrhage. It was now pretty generally agreed upon by surgeons that the best plan was to tie as the vessels were separated. Having spoken of some other points in the technique, Dr. Polk referred briefly to myomectomy. It was now recognized, he thought, that there were some cases in which this was imperative. In interstitial fibroma there was great danger of infection. Everything depended upon securing free drainage, and the mortality of the procedure was more a matter of drainage than anything else.

DR. H. J. BOLDT said that in the admirable paper by Dr. Freeborn on the pathology, he had been disappointed not to hear anything in regard to the primary origin of uterine fibromata. So far as his own microscopical studies went, it seemed probable that these growths really arose from the muscular structure of the smaller blood-vessels. It was from an examination of the smallest myomata only that we could hope to

obtain any light on this subject. Among the changes occurring in the tumors enumerated by Dr. Freeborn was suppuration resulting from infection derived from the bladder and other adjacent organs. For his part he believed that it was impossible to trace any such infection. The only cause of suppuration in these growths, he thought, was intra-uterine traumatism, such as that resulting from the passage of a sound or instruments for inducing abortion.

Dr. Coe had stated that it depended chiefly on the situation of the fibroid whether there was a chance of the gestation going on to full term without endangering the patient's life. It was a fact, however, that in the great majority of cases abortion occurred anywhere between the second and fifth months of pregnancy. The cause of abortion was the same changes which ordinarily prevented conception, namely, those due to inflammation of the endometrium. If a patient should go to term it was far safer to perform abdominal section than to attempt to deliver *per vias naturales*. But in the event of a normal delivery, which sometimes occurred, there was always great danger in the puerperium. When such a threatening condition confronted us he thought we had no right to employ ordinary palliative methods of treatment, which were here only a loss of valuable time, but ought to remove the uterus at once.

Personally, he preferred the total extirpation of the uterus to the Porro operation, and he did not believe that in this class of cases the Porro operation was destined to remain in surgery. As to Dr. Coe's position in advising against matrimony in one who had uterine myoma, he thought this rather extreme ground to take. It was well known that in a large majority of instances women thus affected did not conceive at all, and that if they did, abortion usually resulted.

Taking up the discussion of Dr. Polk's paper, he said that with the present methods of operating we had come to consider hysterectomy not more serious than ovariectomy. As one of the conditions for vaginal hysterectomy, Dr. Polk had laid down the rule that the growth should not be larger than the gravid uterus at the fourth month; but many French surgeons were accustomed to operate through the vagina when it was considerably larger than this. For himself, so far as room from below was concerned, there was only one point that would deter him from vaginal hysterectomy, and that was the presence of a male pelvis. He would not hesitate on account of the size of the vagina. If it was too small it could be enlarged by incision; and while such a complication was certainly not desirable, it did not materially increase the danger of the operation. It was undoubtedly a fact that myomectomy was not performed as frequently here as its merits would seem to deserve, but in Germany it was oftener resorted to. Many myomectomies included one-third of the uterus. Dr. Polk had stated that in performing abdominal hysterectomy it was his practice to allow the ovaries to remain if these organs were healthy, for the purpose of leaving the system of the patient as undisturbed by nervous outbreaks as possible. He (Boldt) thought it was decidedly better to remove the ovaries as well as the uterus.

DR. J. RIDDLE GOFFE said there would seem to be considerable reason for leaving the ovaries and tubes undisturbed, for we all know what tremendous nerve-strains were apt to follow these operations. But in two cases in which he had allowed the ovaries to re-

main he had found it necessary to perform subsequent ovariectomies, although at the time the hysterectomy was done these organs were apparently perfectly normal. It would seem better, as a rule, therefore, to remove the ovaries along with the uterus. In performing hysterectomy he was a very strong advocate of leaving the cervix, as it seemed to him that this had a number of advantages over total extirpation. Among these were the following: Less hemorrhage; no suppuration following the operation; and a smooth and satisfactory convalescence. In addition, the natural supports of the vagina were restored as nearly as possible to their normal condition. Dr. Goffe demonstrated on the blackboard his method of operating, and in conclusion stated that before closing the abdominal walls he was accustomed to cauterize the cervical canal with pure carbolic acid. One advantage of this operation was that after it was concluded it was unnecessary to make any examination or dressing of the parts until the time came for removing the external abdominal stitches. In performing hysterectomy Dr. Polk had truly said that the most important question was the avoidance of hemorrhage, and he fully agreed with him as to the advisability of ligating each vessel separately. He was in the habit of using catgut, No. 8, and had always found it entirely satisfactory.

DR. VINEBERG said that Dr. Polk's advice to allow the ovaries and tubes to remain, in order to avoid the nervous disturbances likely to result from their removal, served to illustrate the fact, he thought, that we had yet a good deal to learn in regard to the functions of these organs. In other kinds of cases it sometimes became necessary to remove the ovaries simply on account of profound nervous disturbances of the system, and he mentioned one such instance met with in his own experience during the past year, in which the removal was followed by a cure. As to the matter of hysterectomy, he had been most successful with the total extirpation of the uterus, and every time that he had deviated from this he had had cause to regret it. One case had terminated fatally from peritonitis, and this was the only case of hysterectomy that he had lost in a number of years. In another case, while the patient's life was saved, there was considerable trouble. Free drainage was of the utmost importance in these cases, and the operation he thought demanded an unusual amount of skill.

He had hoped to hear more than had been said this evening in regard to the indications calling for operative interference. It seemed to him that, with our present knowledge as to the serious consequences likely to result from these growths, if we met with small uterine fibroids it was our duty to warn the patient of the risk incurred by allowing them to remain and increase, and to advise their early removal by the vagina. In regard to the ligation of the uterine arteries, which Dr. Polk had not thought it worth while to consider, he thought it might be of interest to state that he had resorted to this procedure in five cases. In four of them it was entirely without success, but in the fifth the results had been very satisfactory, and for several months now the patient had been practically well. With this case in view he believed that the method was deserving of a further trial.

DR. EDWARD S. PECK has been appointed Professor of Diseases of the Eye at the New York Post-Graduate Medical School and Hospital.

Recent Literature.

The International Medical Annual and Practitioners' Index. A Work of Reference for Medical Practitioners. By thirty-five British and American authors. Sixteenth year. New York: E. B. Treat & Co. 1898.

This well-known and useful publication has been thoroughly revised and brought up to date. It is enriched by a very handsomely illustrated atlas of the bacteria pathogenic to man, by S. G. Shattock, F.R.C.S.

In a book of this size a careful and judicious selection has to be made from an immense amount of material, in order to publish the most valuable additions to medical and surgical methods during the year. The selection for this volume has in the main been carefully done, and the illustrations are numerous and well reproduced.

The book is an excellent handbook for ready reference with regard to new methods of treatment.

Outlines of Anatomy. A Guide to the Methodical Study of the Human Body in the Dissecting-Room. By EDMUND W. HOLMES, A.B., M.D., Demonstrator of Anatomy, University of Pennsylvania; Surgeon to the Methodist Episcopal Hospital; Consulting Surgeon to the State Asylum for the Insane, Norristown; Consulting Surgeon to the Northern Dispensary, etc., Philadelphia. 1897.

This little book is a praiseworthy attempt to enable the student of anatomy to systematize his work of dissection and the study of his part in such a way as to gain as thorough a knowledge of it as possible.

The work of each day of the twenty-one which are allotted to a "part" is thoroughly described and illustrated by diagrams.

The practical importance of a knowledge of the fasciæ, which are too often neglected by the student, is insisted upon, and the dissections of the thorax and abdominal cavity are described with a fulness commensurate with their importance. The difficulty of understanding the peritoneum and its relations is, however, so great, that the student would be much helped by the addition of a brief description of the development of the peritoneum.

The work is intended to supplement, and not replace, the larger text-books of anatomy, and ought to prove of distinct value to the student in enabling him to get the maximum benefit from his practical course in dissection.

RUSH MEDICAL COLLEGE OUT OF DEBT.—The affiliation of Rush Medical College with the University of Chicago is now practically assured, the debt of \$71,000 on the college having been paid off by members of the faculty and friends of the institution. Principal among those who rendered this assistance are Drs. Ephraim Ingals, Nicholas Senn and E. Fletcher Ingals. When the affiliation was announced by President Harper of the University of Chicago, it was conditional on the wiping out of the debt of \$71,000, the change in the methods of choosing trustees, and the advance requirements for students. — *Journal of the American Medical Association.*

THE BOSTON

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THE TESTIMONY OF GASTRODIAPHANY AS TO THE POSITION OF THE STOMACH.

OUR knowledge in regard to the position of the stomach in the human body is derived principally from two sources: the record of the anatomists obtained by inspection of the cadaver; and the record of the clinicians obtained by the application of the several clinical methods of determining this question in the living.

A comparison of these records reveals the existence of a considerable discrepancy between the results obtained from the two separate sources. In the records taken in the living the position of the lower border of the normal stomach is much lower than in those from the cadaver. The discrepancy in question may be determined by a comparison of the anatomical records with those of any one of the accepted clinical methods of examination. Its existence and its extent are, however, most apparent and clearly defined in the records of the method of electrical illumination of the stomach known as gastrodiaophany.

In the cadaver, according to Luschka, the lowest point of the wall of the moderately filled stomach lies opposite a point in the anterior abdominal wall midway between the tip of the xiphoid cartilage and the navel in the xipho-umbilical line. This record of Luschka is accepted generally by anatomists to-day. Poirier gives a rather more precise record, placing the point opposite the disc which separates the third and fourth lumbar vertebræ, corresponding to a point on the anterior abdominal wall seven and one-half centimetres above the navel.

In the living, according to the record of the gastrodiaophane, the extreme lower border of the empty stomach, in the recumbent posture of the subject, lies within an area extending from a plane three centimetres above the umbilicus to the plane of the umbilicus. In the erect posture this border may lie in a plane two centimetres below the umbilicus. In the moderately distended stomach the lower border lies at

or below the umbilicus in the recumbent posture, below it in the erect. The border may sink to a plane four centimetres below the navel with marked distention.

That is, there is a discrepancy of at least four centimetres, and in some cases seven centimetres, between the two records.

If the records of the gastrodiaephane are accurate or even approximately accurate, we must conclude that the lower border of the stomach occupies a considerably lower position in the living than that in which it is found in opening the abdomen after death.

The acceptance of a conclusion on this matter will depend then upon the proof of the accuracy of the records of the diaphane.

This question of the accuracy of the diaphane records has been investigated by Martius, Meltzing, Kuttner, Schwartz, Remond, Renvers, Kelling, Langerhans, Pariser, Hering, Einhorn and others. Theoretically, the error, if one exists, is in one of two directions. If inaccurate, the record is either too small, owing to the capacity of some of the tissues which lie in front of the stomach to absorb the light; or too large, owing to the capacity of the organs or tissues which lie in juxtaposition to the stomach to break or diffuse the light rays.

Schwartz has investigated the question on these lines by experiments on animals. His results show that none of the tissues in front of the lower border of the stomach, the fasciæ, muscles, or flesh absorb the light, and that of the organs or tissues in juxtaposition to the border, the intestine, the omentum and the fat tissue in the visceral and abdominal walls, none effect the light in such a manner as to magnify to a marked extent the actual dimensions in the illumination record.

The intestine filled with chyme or other contents, or with its walls coated with these substances as in the normal conditions, absorbs the light. Even when irrigated and distended with air it does not diffuse the light from the adjacent stomach in such a manner as to confuse the record. The fat tissues of the visceral and abdominal walls do possess some power of breaking and diffusing the light. In a thin subject this diffusion is of slight extent. In a fat subject it may enlarge the image to the extent of one centimetre, not more.

Kuttner, Renvers, Remond, Kelling, all claim from investigations conducted upon the living and the cadaver that the adjacent intestine when distended with gas does transmit the light from the stomach. In none of these investigations were the methods used as thorough as those of Schwartz. Of the above authors, Kuttner alone has investigated the point thoroughly, making one hundred observations; and he admits that no confusion need arise from this condition under the observation of an experienced observer, as the part of the illumination figure due to the effect of the intestine can easily be distinguished by its relative dimness, from the rest of the figure. Also the intestine is, in the living, almost invariably coated with chyme and does not diffuse or transmit the light.

From these investigations it would appear that none

of the factors which have been suggested as capable on theoretical grounds of falsifying the record, actually do so to any marked extent. The results affirm its value as a record of closely approximate accuracy.

Empirically the accuracy of the record has been investigated by comparison with the records obtained by other clinical methods of localization in the same cases. The investigations of Martius, Meltzing, Kuttner, show that the area of illumination corresponds to that obtained by percussion in the stomach distended by gas or water.

Martius found that the record of the lower limit of the stomach, as obtained by palpation of the lamp end of the diaphane in the stomach, corresponds with the record of the illumination.

Meltzing has investigated the subject by comparing the record of illumination with that obtained by localizing the end of the lamp by magnetic attraction. He attached an electro-magnet to the lamp, and localized its position on the lower border of the stomach by running a steel plate over the abdominal wall until it was held by the magnet within. The position of the magnet corresponded in all cases, within one to two centimetres to the lower border of the illumination record.

The investigations of the observers mentioned comprise the largest part of the work done upon the subject.

The accuracy of the method has been tested by investigation of patients which were later subjected to laparotomy. Martius found the record to correspond to the actual position of the stomach in two cases examined. Langerhans found the record only approximately correct in eight cases. The observations of both investigators are not, however, of much value in their bearing upon the subject, as in all the cases the position of the organs was abnormal and also altered by the opening of the abdomen. Langerhans specifies that he does not attach any importance to his results for these reasons.

The results of these control investigations leave us little ground to doubt the approximate accuracy of the records of gastrodiaephany. The investigations are few in number and distributed among few observers, but they are practically of one accord in regard to the point in question. Even the critical and adverse publications admit this approximate accuracy. And this assurance is sufficient for the establishment of one general conclusion. There can be no question of an inaccuracy which would account for such a discrepancy as actually exists between the two records.

The conclusion that the lower border of the normal stomach occupies a lower position in the living than that in which it is found, according to the records of the anatomists, in the cadaver, would then seem to be justified by the records of the gastrodiaephane.

As we have stated, this conclusion is supported by the evidence obtained by other clinical methods of examination, as percussion, palpation and sound palpation.

The records of clinical text-books based upon the evidence obtained by the application of these methods of examination to the living, place the lower border of the moderately distended normal stomach within an area two to three centimetres above the umbilicus.

Pacanowsky, in an investigation of the subject by the method of percussion, found the position with the stomach empty three to five centimetres above the navel. Penzolt in his investigation found the average position four centimetres above the navel. Dehio found the position, with moderate distention, from two to four centimetres above the navel, with fulness at the navel. Scherer found the position at the navel line in fourteen normal cases with the inflated stomach. Leube, by sound palpation, found the level of the empty stomach at four centimetres above the navel; and Schreiber found the level at the navel, with inflation.

In two only of these sets of investigations is the level placed as low as with the gastrodiaaphane, but all place it much lower than in the cadaver records.

We can accept the records of gastrodiaaphany, then, as evidence that the position of the lower border of the normal stomach is much lower in the living than it is placed in the records of inspection of the cadaver. As evidence of the actual localization of the position, however, we can accept this record as approximate only. The same evidence upon which we have established its approximate value excludes its value as an exact record. Thus Schwartz proved that the fat tissues of the visceral and abdominal walls may magnify the image to a slight extent, perhaps one centimetre. Meltzing, in his control investigations with the electromagnet, shows that the record of the magnet and that of the illumination correspond within one to two centimetres. Within these limitations the records may be taken as accurate. Taken thus, the results of the many investigations which have been made indicate that the lower border of the moderately distended normal stomach in the living frequently extends to the plane of the umbilicus. To this fact, of which the results of percussion and palpation have proven a true but hardly accepted witness, the testimony of gastrodiaaphany must prove an assured witness.

MEDICAL NOTES.

SIR SAMUEL WILKS RE-ELECTED.—Sir Samuel Wilks, Bart., has been re-elected President of the Royal College of Physicians for the ensuing year by a practically unanimous vote of the College.

THE ASTLEY-COOPER PRIZE.—The Astley-Cooper Prize, of Guy's Hospital, London, of the value of \$1,500, will be awarded at the beginning of 1901 for the best essay on the subject of "The Physiology of the Pancreas."

THE WESTERN OPHTHALMOLOGIC AND OTOLARYNGOLOGIC ASSOCIATION.—The third annual meeting

of the Western Ophthalmologic and Otolaryngologic (*sic*) Association was held in Chicago, April 7 and 8, 1898. New Orleans was unanimously selected for the next meeting, which will take place just before the Mardi Gras of 1899, thus allowing the members to conclude their scientific session with the gayeties of the carnival season.

PLAGUE DECLINES IN BOMBAY, AND INCREASES IN PUNJAB.—The epidemic of plague which in a recrudescence form has prevailed in Bombay for six months is rapidly declining. An increase is reported in several districts in the Punjab.

"MATHEWS'S QUARTERLY JOURNAL OF RECTAL AND GASTRO-INTESTINAL DISEASES."—This able periodical is to be henceforth known as the *Louisville Journal of Surgery and Medicine*, and will appear monthly. — *Philadelphia Medical Journal*.

DELEGATES TO A SPANISH CONGRESS.—Major Jirard and Medical Director Tryon have been in attendance at the Congress of Hygiene, Madrid, as delegates from the medical departments of the army and navy of the United States. They are presumably on the way home.

PRESIDENCY OF THE GENERAL MEDICAL COUNCIL.—Sir William Turner, who holds the chair of anatomy at Edinburgh University, has been unanimously elected to the presidency of the General Medical Council of Great Britain, made vacant by the death of Sir Richard Quain.

A CONVENT HOSPITAL.—The commander-in-chief of the Gulf Squadron, Captain Sampson, has accepted the offer made by the Mother Superior of the Convent of Mary Immaculate, Key West, to place the convent and two school buildings at his disposal for a hospital, and tendering the services of the sisters as nurses, in the event of hostilities in Cuba. — *Hartford Daily Courant*.

DR. NORTHRUP LECTURES IN PHILADELPHIA.—Dr. Wm. P. Northrup, Professor of Pediatrics in Bellevue Hospital Medical College, gave an address on April 12th before the Philadelphia Pediatric Society, his subject being "The Portal Entry of Tuberculosis in Childhood." The meeting was largely attended and after it a reception was tendered Dr. Northrup.

SERUM THERAPY IN EXCELSIS!—Dr. Evelyn, of San Francisco (*Quarterly Journal of Inebriety; Kansas Medical Journal*, April 9, 1898), professes to cure inebriety by "equisine," which he obtains from the blood of a horse that has been injected with alcohol. The equisine is sterilized, mixed with chloral, and frozen, and a paper saturated "in the fluids" is baked. The patient's skin is scarified, and one of these paper "plaques," moistened with boiled water, is applied once a week for eight or nine weeks. It "never fails if no sedatives or narcotics are used." San Francisco can now add another laurel to its "oxytuberculin" wreath! — *New York Medical Journal*.

BOSTON AND NEW ENGLAND.

ACUTE INFECTIOUS DISEASES IN BOSTON. — During the week ending at noon, April 27, 1898, there were reported to the Board of Health, of Boston, the following numbers of cases of acute infectious disease: diphtheria 32, scarlet fever 26, measles 61, typhoid fever 8.

WARREN TRIENNIAL PRIZE. — This prize has been awarded this year to Dr. Howard Ames Lothrop, of Boston, Mass., for an essay on "The Anatomy and Surgery of the Frontal Sinus and Anterior Ethmoidal Cells."

CENSORS' EXAMINATION. — The Censors of the Suffolk District Medical Society, officiating for the Society at large, will meet to examine candidates for admission to the Massachusetts Medical Society, at 19 Boylston Place, on May 12, 1898, at 2 P. M. Candidates should make personal application to the Secretary, and present their medical diploma or its equivalent at least three days before the examination. For further particulars, apply from 2 to 3 P. M. to John Dane, M.D., Secretary, 29 Marlborough Street, Boston.

THE BROOKLINE PUBLIC BATH. — The report of the Committee on Care and Management of the Brookline Public Bath for the thirteen months from January 1, 1897, to February 1, 1898, states that 47,793 baths were taken, of which 33,332 were baths in the natorium, and 6,981 were rain or tub baths; 7,570 baths were taken by the pupils in the public schools. The actual cost of the maintenance of the bath for twelve months was \$3,310.16, which includes various repairs and improvements. During twelve months, 14,895,500 gallons of water were used. During the first year of its existence this excellent and well-equipped bathing establishment may be said to have amply proved its value to the town.

THE SHARON SANITARIUM. — The report of the seventh year of the Sharon Sanitarium for Pulmonary Diseases shows that twelve patients were admitted during the year, eight being cases of incipient phthisis, all of which showed marked improvement during their stay. Of the eight cases remaining over from the preceding year, four were discharged as "arrested" cases, two as much improved, and two are still at the sanitarium, both improved. The results show according to the report that "incipient consumption can be arrested by such methods in a large percentage of cases, even in the vicinity of Boston. The earnest appeal is made for funds to enlarge the work, an official building, a new dormitory, and suitable rooms for the treatment of patients and for bacteriological work being greatly needed.

NEW YORK.

LECTURES ON CLIMATOLOGY. — The Faculty of the New York Post-Graduate Medical School and Hospital announce a course of six illustrated lectures on Climatology for practitioners of medicine, by Dr. S. E. Solly, the distinguished authority of Colorado Springs, to be given during the fortnight commencing April 25th.

NEW YORK NEUROLOGICAL SOCIETY. — At the meeting of April 15th, the following members were elected to serve the society as officers for the ensuing year: President, Dr. Frederick Peterson; First Vice-President, Dr. Joseph Collins; Second Vice-President, Dr. J. A. Booth; Recording Secretary, Dr. Pearce Bailey; Corresponding Secretary, Dr. L. Stieglitz; Treasurer, Dr. G. M. Hammond; Councillors, Drs. B. Sachs, M. A. Starr, George Jacoby, C. L. Dana and M. P. Jacobi.

THE CARTWRIGHT LECTURES OF THE COLLEGE OF PHYSICIANS AND SURGEONS. — These lectures will be given in the hall of the New York Academy of Medicine on Tuesdays, April 26th and May 3d and 10th, at 8.15 P. M., by W. W. Keen, M.D., professor of the principles of surgery and of clinical surgery in the Jefferson Medical College, Philadelphia. The subject will be "The Surgery of the Stomach," and the lectures will deal with it as follows: I. Gastrotomy and Gastrostomy; II. Gastro-Enterostomy, Pylorotomy, Pyloroplasty, Gastroplication and Gastroplasty and Gastrogastrostomy for Hour-glass Stomach; III. Tumors of the Stomach, Ulcers of the Stomach and Gastrectomy.

A DECISION OF INTEREST TO EX-CRIMINALS WHO MAY WISH TO PRACTISE MEDICINE. — The Supreme Court of the United States has affirmed the constitutionality of the act of the New York Legislature of 1895, prohibiting persons who have been convicted of and punished for a crime, from practising medicine in that State. The question arose in the case of *Walker vs. the State of New York*. Dr. Walker had served a sentence of ten years in the State Penitentiary for an offence committed in 1878, and at the time the law in question was enacted was practising his profession. The opinion in the case was delivered by Justice Brewer, and Justice Harlan dissented from the Court, holding that the law in effect added to the punishment already imposed and carried out and was *ex post facto*.

Miscellany.

DENVER MEETING OF THE AMERICAN MEDICAL ASSOCIATION.

The New England Railroad Committee of Arrangements would announce that the rate to Denver from all stations is one fare *plus* two dollars for a round trip. The tickets will be good for one month, with stop-over privileges. This will enable a large number of physicians and their families to make a delightful excursion.

The meeting promises to be socially and scientifically a most successful one, and a great opportunity will be given to see the Rocky mountains and some of the great cities of the West.

The committee are anxious to arrange for a special excursion train, and desire to consult the wishes of those who expect to go. Two routes have been mentioned: one by Niagara Falls, Detroit, St. Louis, Kan-

sas City, etc., returning via Omaha, Chicago or any other route; the other route, via New York City, Washington, Chicago and some Western line. The time will be from two to three weeks, depending on the excursions around Denver.

We would request all who wish to go to write to Dr. R. E. Campbell, Secretary, Bellows Falls, Vt., stating the number of persons and friends who may accompany them, and the route they would prefer from Boston, Springfield, Albany or New York. Also write him for information, with any suggestions. Those not members or delegates are cordially invited to make this trip.

We understand that a great many New England physicians intend to avail themselves of this opportunity of taking a vacation and visiting the great West, in addition to the professional advantages which are inseparable from such a meeting as that of the American Medical Association.

NIGHT DUTY FOR ADOLESCENTS.

"It would be difficult to exaggerate the services rendered to the public by the admirable organization which provides for the prompt services of messengers at all hours of the day and night. Nevertheless, one cannot but commiserate the fate of the lads who are called upon to pass the night on this fatiguing duty, especially when, as is often the case, they are of microscopic dimensions, and, therefore, presumably of very tender age. It cannot be doubted that the employment on night duty of undeveloped and still growing boys must be fraught with great danger to their future careers from a physical point of view, and we would suggest to the managers of these institutions the propriety of restricting night duty to youths not less than sixteen years of age. Otherwise, it may be necessary to agitate for an amendment of the existing laws on the employment of labor, in order to protect these willing little workers against themselves." — *Medical Press and Circular*.

SOUTH AFRICAN DENTISTS.

A RECENT number of the *Dentist* contains an amusing account of South African dentists, furnished by "a Birmingham gentleman connected with dentistry," who has practised his profession in various parts of the Dark Continent. The South African dentist, we learn, has no drawing-room practice, and the cost of appliances is very high. It is cheaper to import them, but the cost of getting them "up country" is great. Yet it is "up country" that the dentist finds not only profit but amusement. The gentleman referred to and his partner made close on £200 in three weeks — not a bad haul (to use his own expression), considering that their work lay chiefly among a class made up largely of a race noted for the fine quality and condition of their dental apparatus. In such practices as these the dentist covers a very large area. Owing to the distance, the appointments have to be made two or three months ahead. Thus, if a native goes up with a racking toothache (say) in December, he may, if he is lucky, have an appointment for some time in March. So victims to toothache have to exercise more patience

there than civilized man exhibits under the same trying circumstances. The dentist gets an accumulation of practically three months, and makes money and disperses teeth at a rapid rate. He is held in great regard, and, unlike his brethren in Europe, he is looked upon as a kind man. The natives think that to have a tooth drawn in the approved style is almost a pleasure. They have been used to less refined methods. — *British Medical Journal*.

TUBERCULOSIS IN FISHES.

"THE frequency of tuberculosis in cattle, especially milch cows, the extreme susceptibility of rabbits and guinea-pigs among rodents to artificial inoculation with cultures of the bacilli, and the occurrence of the disease both spontaneously and by accidental infection among fowls, have all been well known for many years, but that fishes were susceptible does not seem to have occurred to any one.

"M. Dubar, M. Bataillon and M. Terre, however, reported to the Académie des Sciences an instance of this which is not only probably unique, but presents several points of great scientific interest. The sputa and dejecta of a woman in an advanced stage of pulmonary and intestinal tuberculosis having been thrown into a fishpond many of the carp were observed to swell and die, and on examination their livers and spleens were found to be filled with tubercle bacilli. Others, experimentally fed with tuberculous matter from human subjects, rabbits and fowls, died with the same appearances in two to three weeks and the bacilli of the diseased fish were equally infective to others which devoured them. But when ingested by, or inoculated into, rabbits and fowls the results were negative, the explanation being obviously that they had been so attenuated by cultivation in the colder blood of the fish as to have lost their virulence to warm-blooded animals.

"Fish must therefore be more susceptible than even rodents, though the conditions under which they live offer few opportunities for infection, those of the carp in a confined pond being, in fact, artificial. Under any circumstances, however, the danger of the communication of tuberculosis from the use of such fish as food must be infinitesimally small should this attenuation of the virulence of the bacilli be a constant phenomenon." — *Lancet*.

ETHER DRINKING.

"ETHER drinking, which was so prevalent in certain parts of Ireland a few years ago, was attributed by some to the success of Father Mathew's crusade against alcohol. The propounders of this theory appeared to hold with Byron that 'man being reasonable must get drunk,' and that if he could not fulfil his hypothetical law of his being by means of the stimulants in common use, he was pretty sure to find some other agent for the purpose. According to Dr. Sohn, a medical official of East Prussia, men, women, and children in that province indulge so freely in ether drinking that the roads and markets reek with the mawkish fumes of the drug, just as the railway carriages on the lines of some market towns in the north of Ireland used to do on fair days. The schoolmaster's

teaching is powerless against the pernicious habit; and it may be gathered, though the fact is not expressly stated, that the pastor's homilies are equally ineffective. Lithuanian peasants, says Dr. Sohn, are the chief victims, and the favorite tipple, known as 'Schwefeläther,' and consisting of ether and spirits of wine, can be bought without the least difficulty in grocers' shops. Dr. Sohn attributes the spread of the practice to the imposition in 1887 of a duty on corn brandy, which costs about eightpence a quart, whereas ether, being untaxed, can be purchased for sixpence. The local authorities have prohibited the sale of the noxious stuff, save by apothecaries, and under medical authority; but it is anticipated that strong measures will have to be taken by the government to stamp out the evil." — *British Medical Journal*.

PROGRESS IN ADOPTION OF UNIFORM SYSTEMS OF CLASSIFICATION OF DISEASES AND CAUSES OF DEATH.

THE following extracts from a recent editorial of the Registrar of Vital Statistics, of Michigan, show that he is alive to the importance of securing uniformity in methods of classification throughout America. It is gratifying to note that several States and provinces have already fallen into line in this direction; and it is only a question of time when all States having registration will also take progressive action in the matter:

It goes without saying that real advancement in the comparative statistical study of causes of death cannot be made until registrars generally are agreed on the meaning and inclusion of the terms employed. Only by the adoption of a uniform system of classification can the identity of the terms representing causes of death be assured. No perfect classification has yet been proposed, nor can such hardly be expected in the nature of things, as medical science is constantly progressive, and a system fully up to date on adoption will necessarily be behind the most advanced line of medical knowledge by the time that it has been put into practical operation and returns have been compiled thereunder. Furthermore, any system of classification must be subject to revision from time to time, and therefore no insuperable objection should obtain against the adoption of a fairly satisfactory system on the ground of a few defects, since in the course of a few years, by concerted action on the part of the registrars employing it, it may be so modified as to eliminate all serious objections. The best criticism of a system can only come from its practical use, and the great advantage of uniformity so far outweighs any of the minor objections which might be raised against the Bertillon system, that we have seen no reason to regret for an instant the formal adoption by this Department of that classification for the compilation of the mortality statistics of Michigan.

The progress of the classification elsewhere is very gratifying. It is now in use in the following important registration offices on this continent.

Canada: Province of Ontario, Province of Quebec.
United States: State of Michigan, State of Vermont, City of Buffalo, City of Milwaukee.
Mexico (Superior Board of Health).

The above list does not profess to be complete, but it is especially noteworthy that with the exception of Quebec, Mexico and the city of Buffalo, the Bertillon classification has been adopted during the present year. No other classification has at the present time as extensive and uniform prevalence in this country. Several States having registration now employ very antiquated systems, and have expressed their readiness to make a change to modern methods as soon as a fairly satisfactory classifica-

tion should come to the front. It is believed that the prospect is excellent for a wide extension of the use of the Bertillon system in the near future.

Correspondence.

[Special Correspondence.]

BERLIN LETTER.

STUDENT DUELLING AND PSYCHOLOGY OF SPORT. — "MENSUR" AND FOOT-BALL. — PHLORIZIN DIABETES AND THE RENAL RÔLE IN GLYCOSURIA. — THE BUILDER OF THE FIRST PYRAMID A PHYSICIAN.

A RECENT bit of university news from Tübingen in Württemberg is, that during a *mensur* (a student's duel) there, one of the duellists-for-fun was struck so severely just above the orbit with the duelling *schläger* — we can scarcely translate it *foil* — that the eye was forced from its socket. This is the second serious accident during the present semester. In the other case, at one of the smaller universities in the southern part of Germany also, a surgical complication after a duelling wound caused a fatal issue. Erysipelas set in in a scalp wound, and the streptococci were carried by emissary veins to the interior of the skull and set up meningitis which terminated fatally.

The so-called sport would bear interesting comparison with our own foot-ball, where fatal accidents are not all too rare. The two would seem to suggest the principle in the psychology of sport, that, for that middle term between boyhood and manhood, interest in sport is almost inevitably bound up with an element of danger. I am sorry to say that university men's sisters here seem to be quite as proud of a brother's prowess in *mensur* as American girls are of their own and other people's brothers' success on the foot-ball field; which will have to go down as another psychological paradox, I suppose.

The hideous scars the sport leaves might, one would think, at least deter the sex from interest in it; but it does not. Very few German students are without them; very few German professors but carry traces of the sport of twenty-five to fifty years before. When Macaulay's New Zealander has grown tired of standing on the broken arches of London bridge, sketching the ruins of St. Paul's, and goes home to study, from the remains found in the ruins of the British Museum, the details of university life in our day, one cannot help but think that the scarred faces of German University students, the representatives of the greatest university life of our day, will prove a mystery to him. With a true commentator's spirit, however, he will have to have a theory, and it will, I suppose, read something like this:

"As university education became more generalized, there had to be some ready way of distinguishing university from non-university men; and so on entrance to the university, the students inflicted on the left side of their faces deep wounds which were not allowed to heal by primary intention (for it must be remembered that it was just at this time that Lister initiated the first great scientific advance in the treatment of wounds), but which were irritated so as to leave a scar. The number, depth and ugliness of these scars, then, showed the student's earnestness of purpose and his devotion to science and education."

The explanation will be no farther fetched than the lucubrations of many a scholiast of our day. The fact of the matter is, that, paradoxical as it may seem, the easiest way to tell a German University man is by looking for traces of scars on his head and cheek.

Here, of course, duelling is forbidden by the police and university authorities; but there is no serious effort made to stop the practice, and towards the beginning and end of each semester young university men strut proudly on the principal streets or drive around ostentatiously in open carriages with their heads and cheeks bebandaged and beplastered. Some of the medical men have taken a decided stand against the practice, but this avails little, as society

generally and the kaiser are sympathetically inclined to tolerate—one would almost say, encourage—the sport. One hears a good deal of a spirit of manliness that it engenders, of personal courage, of the lesson of not minding a little knock or two or the flow of a little blood, of learning to keep one's temper under trying circumstances, that sounds wonderfully familiar to an American who has heard people talk who held a brief in the foot-ball case.

Of course, I would not think for a moment of comparing this brutal indoor sport, that has none of the claims of our great outdoor game in its favor, with foot-ball. (May I say that no German would either, because he considers foot-ball beneath notice, a matter of fisticuffs and brute strength.) I have thought that a bringing them together under a psychological aspect might make it clearer how a false university spirit may conceal the brutality of something that is at once evident to disinterested outsiders.

The discovery some time ago that phlorizin would produce artificial diabetes awakened the hope, openly expressed by many, that at last some explanation of the immediate etiology of the disease would be found. A discussion at the Verein für Innere Medizin at the April meeting would not seem to encourage this hope much. Experimental evidence seems to show that in phlorizin diabetes it is the kidney that is at fault; and so a reversal of opinion somewhat in the direction of the old opinions as to a kidney diabetes seems imminent.


A very interesting set of experiments were reported by Dr. Marchuso, which would seem to demonstrate not alone the kidney function in the matter, but also to indicate precisely what special part of the urinary secreting apparatus is at fault. Milk-sugar, it is well known, when injected into the circulation, is excreted as such, the system being unable seemingly to make any use of sugar in this form for any of the nutritional processes that are accomplished in the circulation. If Haidenhain's ligature of the renal arteries, however, be made, then the milk-sugar fails to appear in the urine; but if now phlorizin be given the animal, the milk-sugar at once begins to be excreted. As Haidenhain's expedient practically shuts off the glomeruli from any share in any action of the kidney that may take place, it would seem as though it was some influence of the phlorizin upon the cells of the urinary tubules that led to the excretion of the sugar. Experimentally it can be shown by the iron-chloride reaction that phlorizin is present in the cells of the urinary tubules some time after its ingestion, and its presence would seem to result in that lowering of their function which allows the passage of sugar. This, of course, is to revert to an old theory and makes the etymology of diabetes from *dia* "to go through," true once more.

The whole subject of diabetes is gaining very greatly in interest over here. More exact diagnostic methods have shown that slight forms of diabetes are much more common than was thought some time ago. Then, too, all the great clinicians are agreed that the disease is not only relatively but absolutely more frequent than it used to be, and the conjugal form of the disease in which it attacks both husband and wife has attracted a good deal of attention, as possibly pointing to an infectious element in the disease. There are even those who assert that the modern liking for sweets has so reduced generally the power of metabolism for the carbohydrates that the limits of alimentary glycosuria are lower than they were, and the tendencies to diabetes much more outspoken.

Some recent study of antique Egyptian papyri, especially the Ebers papyrus, No. 99.3, seems to show that the builder of the first pyramid was a physician. The hieroglyphic with which he constantly signs his name means servator, preserver, and was a usual designation of physicians at the time. As he uses the designation on all occasions to the exclusion of other titles, though he is known from other sources to have had very honorary titles, and it was not the usual custom of the Egyptians to let their titles remain unknown for lack of mention, he would seem to have been proud of his right to the title of physician, and is probably the first worthy member of the guild on record.

METEOROLOGICAL RECORD

For the week ending April 16th, in Boston, according to observations furnished by Sergeant J. W. Smith, of the United States Signal Corps:—

Date.	Baro- meter	Thermom- eter.			Relative humidity.			Direction of wind.		Velocity of wind.		We'th'r. *		Rainfall in inches.
	Daily mean.	Daily mean.	Maximum.	Minimum.	8.00 A. M.	8.00 P. M.	Daily mean.	8.00 A. M.	8.00 P. M.	8.00 A. M.	8.00 P. M.	8.00 A. M.	8.00 P. M.	
S...10	30.12	44	48	41	63	81	72	S.W.	E.	2	5	C.	O.	.02
M...11	30.18	48	54	53	85	85	85	E.	S.E.	6	6	O.	O.	.11
T...12	30.06	48	55	40	86	80	73	N.	N.E.	8	10	O.	C.	
W...13	29.80	52	59	46	16	42	44	N.	N.	18	11	O.	O.	
T...14	29.65	43	46	40	88	98	91	N.E.	E.	8	13	O.	R.	
F...15	29.56	40	42	38	96	100	98	N.E.	N.E.	15	25	R.	R.	1.02
S...16	29.81	46	54	38	84	63	74	N.	W.	10	7	O.	C.	.04
														

* O., cloudy; C., clear; F., fair; G., fog; H., haze; S., smoky; R., rain; T., threatening; N., snow. † Indicates trace of rainfall. — Mean for week.

RECORD OF MORTALITY

FOR THE WEEK ENDING SATURDAY, APRIL 16, 1898.

Cities.	Estimated population.	Reported deaths in each.	Deaths under five years.	Percentage of deaths from					
				Infectious diseases.	Acute lung diseases.	Diarrheal diseases.	Diphtheria and croup.	Measles.	
New York	3,438,899	1267	466	8.96	16.10	1.33	2.80	1.47	
Chicago	1,619,226	—	—	—	—	—	—	—	
Philadelphia	1,214,256	507	175	11.59	13.49	.38	6.46	2.09	
Brooklyn	1,160,000	—	—	—	—	—	—	—	
St. Louis	570,000	180	—	3.30	21.45	.55	1.55	.55	
Baltimore	550,000	212	71	6.11	14.57	.47	2.62	.47	
Boston	517,732	229	57	2.64	20.24	.44	1.76	—	
Cincinnati	405,000	—	—	—	—	—	—	—	
Cleveland	350,000	—	—	—	—	—	—	—	
Pittsburg	285,000	108	41	10.12	19.32	1.84	.92	—	
Washington	277,000	87	31	9.20	18.40	—	4.60	—	
Milwaukee	275,000	—	—	—	—	—	—	—	
Worcester	105,050	36	15	8.31	19.39	—	—	—	
Nashville	87,754	28	7	3.57	13.23	3.57	—	—	
Fall River	95,919	45	23	17.76	17.76	13.33	—	—	
Lowell	87,193	27	6	11.11	18.50	—	—	—	
Cambridge	86,812	22	6	18.16	27.24	—	4.54	—	
Lynn	65,220	16	4	6.25	6.25	—	—	—	
Charleston	65,165	—	—	—	—	—	—	—	
New Bedford	62,416	18	9	11.11	—	16.66	—	—	
Lawrence	55,510	10	5	30.00	10.00	—	20.00	—	
Springfield	54,790	22	5	—	31.78	—	—	—	
Holyoke	42,364	10	6	20.00	10.00	10.00	—	—	
Portland	40,000	—	—	—	—	—	—	—	
Salem	36,062	2	0	50.00	—	—	—	—	
Brookton	35,853	11	2	—	9.09	—	—	—	
Malden	32,894	6	0	—	—	—	—	—	
Chelsea	32,716	11	4	—	—	—	—	—	
Haverhill	31,406	9	4	—	22.22	—	—	—	
Gloucester	28,775	—	—	—	—	—	—	—	
Newton	28,990	11	1	9.09	9.09	—	—	—	
Fitchburg	28,392	9	3	22.22	—	—	—	—	
Taunton	27,812	10	1	—	20.00	—	—	—	
Quincy	22,562	5	0	—	—	—	—	—	
Pittsfield	21,591	—	—	—	—	—	—	—	
Waltham	21,812	6	4	33.33	—	16.66	—	—	
Everett	21,575	4	1	—	25.00	—	—	—	
Northampton	17,448	—	—	—	—	—	—	—	
Newburyport	14,794	9	0	—	11.11	—	—	—	
Amesbury	10,920	—	—	—	—	—	—	—	

Deaths reported 2,809; under five years of age 962; principal infectious diseases (small-pox, measles, diphtheria and croup, cerebro-spinal meningitis, diarrheal diseases, whooping-cough, erysipelas and fevers) 280, acute lung diseases 518, consumption 337, diphtheria and croup 98, diarrheal diseases 38, measles 38, whooping-cough 34, typhoid fever 28, cerebro-spinal meningitis 23, scarlet fever 18, erysipelas 3.

From whooping-cough New York 18, Philadelphia 4, Baltimore and Pittsburg 3 each, Worcester 2, Boston, Lowell, Cambridge and Fitchburg 1 each. From typhoid fever Philadelphia 8, Pittsburg 5, Washington 3, Fall River and Somerville 2 each, St. Louis, Lowell, Cambridge, Lynn, Lawrence, Salem, Newton and Fitchburg 1 each. From cerebro-spinal meningitis New York 12, Baltimore and Somerville 2 each, Philadelphia, Washington, Providence, New Bedford, Holyoke, Malden and

Waltham 1 each. From scarlet fever New York 16, Philadelphia and Lowell 1 each. From erysipelas New York 2, Worcester 1.

In the thirty-three greater towns of England and Wales, with an estimated population of 11,218,378, for the week ending April 9th, the death-rate was 20.2. Deaths reported 4,352; acute diseases of the respiratory organs (London) 372, measles 234, whooping-cough 125, diphtheria 57, fever 34, scarlet fever 33, diarrhea 31.

The death-rates ranged from 12.6 in Portsmouth to 27.7 in Liverpool; Bradford 21.9, Birmingham 22.9, Cardiff 15.3, Gateshead 16.1, Hull 20.9, Leeds 23.5, Leicester 21.0, London 19.6, Manchester 18.7, Newcastle-on-Tyne 22.9, Nottingham 19.9, Salford 25.6, Sheffield 23.0, Sunderland 19.9, Swansea 16.4, West Ham 14.7.

OFFICIAL LIST OF CHANGES IN THE STATIONS AND DUTIES OF OFFICERS SERVING IN THE MEDICAL DEPARTMENT, U. S. ARMY, FROM APRIL 16, 1898, TO APRIL 22, 1898.

COLONEL CHARLES R. GREENLEAF, assistant surgeon-general, will transfer his duties pertaining to the Medical Supply Depot at San Francisco, Cal., to LIEUT.-COL. JOHNSON V. D. MIDDLETON, deputy surgeon-general, chief surgeon, Department of California, who will perform them in addition to his present duties, and will also perform the duties of chief surgeon, Department of the Columbia, during the remainder of the absence on leave of LIEUT.-COL. WILLIAM D. WOLVERTON, deputy surgeon-general.

MAJOR JOHN VAN R. HOFF, surgeon, is relieved from duty at Vancouver Barracks, Wash., and from the temporary charge of the office of the chief surgeon, Department of the Columbia.

COLONEL GREENLEAF and MAJOR HOFF will repair to this city and report in person to the surgeon-general of the Army for duty.

MAJOR EGON A. KOEPPER, surgeon, is relieved from duty at Fort Crook, Neb., and will report by letter to the commanding officer, Department of the Missouri, for assignment to duty as chief surgeon of that department.

CAPTAIN RUDOLPH G. EBERT, assistant surgeon, is relieved from duty at Fort Missoula, Mont., and will proceed to Tampa, Fla., and report to the commanding officer, 17th Infantry, for duty.

LIEUT.-COL. ALBERT HARTSUFF, deputy surgeon-general, will proceed from Headquarters, Department of the Lakes, Chicago, Ill., to Chickamauga Park, Ga., for temporary duty.

OFFICIAL LIST OF CHANGES IN THE MEDICAL CORPS OF THE U. S. NAVY FOR THE WEEK ENDING APRIL 16, 1898.

L. L. VAN WEDEKIND, passed assistant surgeon, detached from the Naval Academy and ordered at once to the "Minneapolis."

L. L. SPATLING, passed assistant surgeon, detached from the Naval Hospital, Philadelphia, Pa., and ordered at once to the "Columbia."

H. H. HAAS, assistant surgeon, detached from the "Vermont" and ordered at once to the "Texas."

E. V. ARMSTRONG, assistant surgeon, commissioned assistant surgeon from April 5th.

W. H. BUCHER, assistant surgeon, commissioned assistant surgeon from April 5th.

D. DICKESON, medical inspector, ordered to Marine Headquarters, Washington, D. C.

D. N. BERTOLETTE, surgeon, detached from the Marine Headquarters, Washington, D. C., and ordered to the "Vermont."

W. H. RUSH, surgeon, ordered to the "Dixie" at once.

J. M. EDGAR, surgeon, detached from the "Vermont" and ordered to the "Prairie."

J. M. PICKRELL, passed assistant surgeon, detached from the hospital, Washington, D. C., and ordered to the "Yosemite."

A. M. D. MCCORMICK, passed assistant surgeon, detached from the Naval Academy and ordered to the "Yankee."

M. R. PIGOTT, passed assistant surgeon, ordered to the Naval Academy at once.

L. G. HENNEBERGER, surgeon, ordered to the Bureau of Medicine and Surgery.

M. C. DRENNAN, medical inspector, detached from the "New York" and ordered home to wait orders.

C. U. GRAYATT, medical inspector, detached from the "San

Francisco" and ordered at once to the "New York," as fleet surgeon.

A. C. H. RUSSELL, surgeon, detached from the Naval Museum of Hygiene and ordered to the "San Francisco" at once.

F. J. B. CARDEIRO, surgeon, detached from the "Michigan" and ordered to the "New Orleans" at once.

W. H. BUCHER, assistant surgeon, ordered to the "Vermont" temporarily.

E. V. ARMSTRONG, assistant surgeon, ordered to the "Scorpion."

APPOINTMENT.

DR. FREDERIC M. BRIGGS has been appointed professor of clinical surgery at the Tufts College Medical School.

SOCIETY NOTICES.

BOSTON SOCIETY FOR MEDICAL IMPROVEMENT.—A regular meeting of the Society will be held at the Medical Library, 19 Boylston Place, on Monday evening, May 2d, at 8 o'clock.

Dr. J. B. Blake will read a paper entitled: "Traumatic Abdominal Hernia."

Dr. E. W. Taylor: "Tumors of the Frontal Lobes; with Special Reference to a Case simulating Neurasthenia until Shortly before Death."

JAMES G. MUMFORD, M.D., Secretary, 197 Beacon St.

SUFFOLK DISTRICT MEDICAL SOCIETY, SURGICAL SECTION.—The Surgical Section will meet at the Medical Library, 19 Boylston Place, on Wednesday evening, May 4, 1898, at 8.30 P. M.

Papers: "Some Considerations on the Treatment of Fecal Fistula and Artificial Apus," by Dr. C. B. Porter.

"Cases of Intestinal Surgery," by Dr. M. H. Richardson.

"A Case of Congenital Deformity of the Thumbs, with Plaster Casts of the Hands," by Dr. Agnes C. Viator.

The presentation of specimens, apparatus, etc., of surgical interest is invited.

PAUL THORNDIKE, M.D., Secretary, 244 Marlborough St.

AMERICAN GASTRO-ENTEROLOGICAL ASSOCIATION.—The first annual meeting will be held at "The Shoreham," Washington, D. C., Tuesday, May 3, 1898. The following papers will be presented.

"A Case of Atrophy of the Stomach, with Exhibition of Specimen," Dr. Julius Friedenwald, Baltimore, Md.

(a) "A Case of Acute Pancreatitis," (b) "Carcinoma of the Cardia," Dr. Morris Manges, New York.

"Nervous Dyspepsia, with Report of Cases," Dr. Frank H. Murdoch, Pittsburg, Pa.

RECENT DEATH.

DAVID WEBB HODGKINS, M.D., M.M.S.S., died in East Brookfield, April 19, 1898, aged sixty-three years.

BOOKS AND PAMPHLETS RECEIVED.

Proceedings of the Pathological Society of Philadelphia, April 15, 1898. New Series, Vol. 1, No. 6.

The Surgery of Tuberculosis of the Peritoneum. By Parker Syme, M.D., New York. Reprint. 1898.

Solution of the Proprietary-Medicine Question. By C. C. Fite, M.D., New York City. Reprint. 1898.

A Description of Hospital Buildings on the Pavilion Plan. By Albert Vander Veer, M.D., Albany, N. Y. Reprint. 1898.

On the Necessity of Repeated Examinations in the Correction of Errors of Refraction. By Cassius D. Westcott, M.D., Chicago. Reprint. 1898.

The Diseases of the Stomach. By William W. Van Valzah, A.M., M.D., Professor of General Medicine and Diseases of the Digestive System in the New York Polyclinic Medical School and Hospital. Philadelphia: W. B. Saunders. 1898.

An American Text-Book of Genito-Urinary Diseases, Syphilis, and Diseases of the Skin. Edited by L. Bolton Bangs, M.D., Consulting Surgeon to St. Luke's Hospital and the City Hospital, New York, etc.; late Professor of Genito-Urinary and Venereal Diseases, New York Post-Graduate Medical School and Hospital; and W. A. Hardaway, A.M., M.D., Professor of Diseases of the Skin and Syphilis in the Missouri Medical College, St. Louis; Physician for Diseases of the Skin to the Martha Parsons Hospital for Children, etc. Illustrated with 300 engravings and 20 full-page colored plates. Philadelphia: W. B. Saunders. 1898.

Address.

SOME REMARKS ON HOSPITAL ABUSE.¹

BY FREDERICK C. SHATTUCK, M.D., BOSTON.

HOSPITALS are so beneficent and the lives of many of us are so bound up in them and their work, that we may at times fail to realize that they have any possibilities of evil, either as regards the public in general or our own profession.

With your permission I shall venture to lay before you a few thoughts which come into my mind on this question; some general subject pertaining to medicine seeming to be more suitable for the address with which it is my great privilege, thanks to your unmerited kindness to me, to open our session.

Though it is over 400 years since this country was discovered, and more than 250 years since real settlements by highly endowed members of the Anglo-Saxon race were effected, the first hospital was founded not much more than a century ago. Until approximately fifty years ago the population was relatively homogeneous, and even the largest cities were small enough for the inhabitants to know each other and each other's affairs. There were few poor, and neighborly succor efficiently met illness and the distresses which so often follow in its train. Then began the great Irish immigration, followed by that from almost every overstocked European country; the older cities grew apace, and new cities sprang up as the tide moved westward. The conditions of life changed with enormous rapidity, and every large city developed a class whose earnings or whose lack of thrift do not permit provision against the almost inevitable day when the bread-winner, afflicted with acute or chronic disease, can win no bread, while the requirements of himself and his family can be but little if at all diminished.

We all know from personal experience how wonderfully helpful the members of this class are to each other in trouble of all kinds; also, that their helpfulness has clearly defined limits. The larger the class grows the more imperfectly are its members acquainted with one another and with one another's special needs; and much less are they, as individuals, known to the easier classes. Thus organized and public must supplement private and individual help in time of need, and it is natural that the hospital should take a high, if not the first place among the forms of help. We are all mortal; the vast majority of us are unsound somewhere; illness and disability come to many without any fault on their part. Health is an almost indispensable condition of support and usefulness. Its preservation, therefore, appeals directly alike to the head and heart of the community.

All the first hospitals in this country were founded by private individuals, public spirited, anxious to benefit their less fortunate fellow-mortals and fellow-citizens. But as cities grow large it is often found necessary for the tax-payers to aid and supplement private effort. We see, then, that the original cause for hospital foundation lay in charity—charity in its best and highest sense. Hospitals were designed to help those who could not help themselves; and it has been and is the pleasure as well as the duty of the medical profes-

sion to contribute its full share by rendering its services without direct pecuniary reward. But we should never forget that no physician can do conscientious work in a hospital without indirect reward, a portion of which is pretty sure to be pecuniary. The gain in knowledge, the stimulus to its acquirement, the development of the man and doctor alike which the honest performance of hospital work surely bring, almost as surely lead to the better performance of private work, and hence to the demand for it. As hospital physicians we are, I think, sometimes inclined to strike a false balance between the sacrifice of time and strength which hospital work demands, and the return, which is none the less real because it is indirect and cannot be estimated with mathematical accuracy. Personally, I believe that this natural return is ordinarily ample, and that any conscious and deliberate attempt on our part to enhance it can only be lowering to ourselves and unfair to the general body of the profession.

And just as there are indirect advantages flowing to physicians from hospitals, so also do they flow indirectly to the rich who endow and maintain them; in that the rich profit by the skill acquired by the staff, and by the advance in scientific knowledge secured by the minute study of collected cases of disease. Virtue may be its own, but it is not necessarily its only, reward.

I repeat that the primary purpose of hospitals is charitable; hence, their immediate benefits should be reserved for the poor, for those who are unable to pay for medical attendance. Poor and rich are, of course, relative terms and not easy of exact definition. A person may be able to pay one fee, perhaps several fees; but totally unable to pay for prolonged attendance. Medical attendance, moreover, stands on quite a different footing from almost every other necessary of life. There are different grades of food and clothing, even of fuel and light, between which, within certain limits, one can choose without detriment to health but with advantage to the pocket. The first cuts of meat are no more nutritious than the lower grades; and style alone may be the larger element in the cost of clothing, to say nothing of the choice of material. But the poorer a person is, the more purely dependent he and his are on his own exertions, the more important is it for him to have the best medical care attainable. Here economy may be the wildest extravagance. This is an aspect of hospital abuse which cannot be lost sight of. There is no clearly discernible line of cleavage, and therefore abstract justice cannot be done in every case; as in most other branches of human activity substantial justice is the best we can hope, at present at least, to attain. Medical charity in hospitals and dispensaries should be freely extended to those who require it; denied to those who do not, and from ignorance or parsimony demand it. The community suffers if provision is insufficient or proper access is difficult. The community also suffers if no questions are asked, the independence and self-respect of the laity being undermined, and the medical profession failing to receive returns which justly belong to it. Alike as citizens and professional men, we should carefully scrutinize the claims of every new charitable medical institution, and refuse our aid and countenance unless satisfied that it is likely to meet a real need in the community.

The same care should be exercised with regard to abuse creeping into existing institutions. The matter

¹ President's Address delivered before the Association of American Physicians at its Annual Meeting in Washington, May, 1896.

lies really in the hands of our profession. If no physician would serve or aid in promoting a medical charity, so called, founded mainly on sentimental or selfish considerations, such would soon cease to exist—and the millennium would be at hand. There is too much reason to believe that hospitals and dispensaries are sometimes started purely in the selfish interest of members of our profession.

The second great function of hospitals—second in point of time evolution, though not, I believe, in point of importance—is the educational function, the advancement and dissemination of knowledge. On this function I need not dilate to this audience. It is, of course, more obvious to us than the laity. But their attention is being more and more called to it. They are quick to see the truth and to recognize the powerful stimulus to the staff to do first-class work afforded by the critical eyes of bright students. The clinical teacher must study his cases carefully: compulsion acts more imperatively on him than on the hospital physician who is not also a clinical teacher. The necessities of teaching and the demand for much material from which to select has been used as an excuse for the abuse of hospitals and dispensaries, and to a certain extent such excuse may be valid. Students should become familiar with as wide a range of disease as possible. The didactic lecture in medicine and surgery is slowly but surely falling into the background, teaching becoming more and more clinical. Patients may be made to pay in their persons if not from their pockets. The student and clinical teacher demand material, the practitioner wants patients. When the student becomes a practitioner his point of view changes. But he should not forget that he, when a student, probably gained in remunerative knowledge more than the equivalent of a few cases which, after he has gone into practice, seek advice at a hospital instead of paying his fees. Our direct losses loom up larger than our indirect gains. I do not mean to imply that a teaching hospital is free from responsibility in regard to this matter. I merely want to indicate that there are two sides to this question, at the same time stating my conviction that very little injustice need be done if a due sense of responsibility is felt and influences action.

Complaint in the medical press of hospital out-patient departments and dispensaries seems to be endemic in England, and there has been of late an epidemic in this country; legislation on the subject has even been seriously considered. It is claimed that the doors of these institutions are thrown open so widely as to entail great hardship on many worthy members of the profession. That there is some ground for these complaints I fear there can be no question. For some eight years I did out-patient work in the Massachusetts General Hospital, and have no reason to believe that the conditions are materially different now from what they were at that time. The number of cases of deliberate intention to avoid payment for advice was, as I remember, small. Some residents of the city, apparently able to pay, came, seemingly without wrong intent, to get an opinion and see how far it coincided with that of their doctors. More came thus from the country, under the impression that the city must contain more wisdom, not knowing whom there to consult, and not having told their regular advisers that they wanted further advice. The reputation of the hospital, and sometimes the idea derived from the

name "Massachusetts General," that it is a State institution, to the benefits of which as tax-payers they had a right, determined their coming. Not infrequently patients would come, more commonly from out of town, either with their physician or with a letter from him, asking for a consultation and perhaps a detailed opinion in writing—no light demand considering the number of patients requiring attention.

For some years now at the Massachusetts General Hospital a paid medical officer questions applicants to the Out-patient Department as to their circumstances, and refuses entrance to those who do not seem to him proper cases for free advice. It is also his duty to exclude such diseases as measles, scarlet fever and the like from the waiting-rooms in order that their spread may be limited. This is a plan which does not involve a hospital in great expense—five hundred dollars per annum at the Massachusetts General Hospital, with an average of about one hundred new patients a day—as the services do not require more than a couple of hours a day, seems to me as efficient as any plan which has been suggested, and one which it is not unreasonable to expect all similar institutions to carry out.

There is another ground for complaint against hospitals about which less has been said. I refer to the growing practice of attaching pay-wards to hospitals, which, let me repeat once more, are founded and exist for charitable and educational purposes. Patients who pay from twenty to fifty dollars per week for private rooms ordinarily serve neither of the above purposes, and provision for them here seems to me unfair and improper, unless to a very limited extent. This is not a legitimate mode of providing revenue for the care of the sick poor. Our well-to-do citizens are amply able, and I am convinced more than willing, to provide for such care through gifts, bequests and taxes. The chances are strong that a hospital which cannot be maintained without resort to this practice is in whole or in part unnecessary to the community in general, and should, consequently, in whole or in part, close its doors until the community in which it is situated grows up to it. One great and well-known hospital derived fifty-five thousand dollars from this source last year. I am told that other great hospitals are making large investments in this field. I am perfectly well aware of the fact that strangers in the city fall ill in hotels, and that residents are for one reason or another sometimes so situated at their abodes that proper care is difficult or impossible to secure. I know what a boon it sometimes is to patient and physician alike to have access to a well-organized hospital. But this need not and should not be a charitable hospital. This class of cases is sufficiently large in every considerable city to maintain one or more hospitals or infirmaries; private in that they are designed for private patients, public in that any physician can send his patient thither and assume personal care of him, making such professional charges as his wisdom and conscience dictate. This is free trade in medicine. In a large hospital it is, from an administrative point of view, impossible to allow physicians other than members of the staff to care for patients within its walls. The small private hospital or infirmary can be made to yield a good return on the investment and no injustice is done to anybody. And it seems to me that injustice to somebody is inevitable when well-to-do

patients are admitted to hospitals designed for the sick poor. If the staff is allowed to receive fees for attendance on such patients, its members are given an unfair advantage over those members of the profession without hospital appointments, and the hospital becomes a sort of medical trust. The indirect benefits of hospital service are quite sufficient. If the members of the staff are not allowed to take fees, the well-to-do patient is injured by receiving gratis services for which he is able to pay and should pay; the time and skill of the attendant is diverted from the sick poor or from such use as he might wish to make of them; and the sum of professional earnings, now none too large, is unfairly diminished. Commercialism tends to degrade the medical profession, and if well-to-do patients are to be cared for in our great hospitals, it seems to me that the evils of free are less than those of paid professional service.

The Massachusetts General Hospital has eight private rooms of the class I now allude to. Years ago the staff itself established the rule that no fees should be received for attendance on inmates of the hospital, and a printed notice to that effect is placed in each of the private rooms.

The hospital physician can keep his private hospital if he will; or he can, just like any other physician in the town, send his patients to an infirmary. The charitable and educational institution should not step in to save its staff the trouble of housekeeping, and of providing and superintending nursing for patients in easy circumstances. It should not demand of its staff unrequited service save for the sick poor. It should not place any unnecessary obstacles in the way of full and free competition between members of our profession. To the exaction of the payment of a few dollars a week from patients who can afford it, who are treated in the ordinary wards, and who can be used for teaching if suitable cases, I can see no valid objection. The self-respect of the patient is maintained by rendering some return for much-needed care which his circumstances preclude his securing at home, and no just ground for complaint is afforded practising physicians unattached to hospitals.

In this whole question we have a responsibility which we cannot escape. The more fortunate a man is the more mindful should he be of the rights of others, especially of his professional brethren. The staff of the hospital or dispensary should co-operate fully with the trustees, giving them the full benefit of their more intimate knowledge of all professional matters, and always remember the broad therapeutic principle, "Ne quid noceat."

HERBERT SPENCER AND VEGETARIANISM.—It having been reported, according to *Food and Sanitation*, that Herbert Spencer was a vegetarian, he was one day questioned by an ardent disciple of that cult as to whether he really was of that "hygienic persuasion." Mr. Spencer replied, "Yes; I was a vegetarian for a year." Delighted, his interlocutor now demanded if he had maintained the vegetable régime—and surmised that in any case he had found immense benefit from it, particularly mentally. "At the end of that year," went on Mr. Spencer in his dry voice, "I read over all that I had written during the period, and forthwith consigned it *in toto* to the fire."

Original Articles.

CASE OF REMOVAL OF THE ENTIRE STOMACH FOR CARCINOMA; SUCCESSFUL ESOPHAGODUODENOSTOMY; RECOVERY.

BY CHARLES BROOKS BRIGHAM, M.D. (HARV.), SAN FRANCISCO.

HISTORY.

LORA MAGINNI, widow and housewife, sixty-six years of age, had complained of pain in her stomach for the last year. She was able, however, to digest her food until Christmas time, when she vomited any solid food that she took. Not caring for bread and meat, she confined herself to liquids and to thickened gruels, and so was able to keep her usual weight of 135 pounds. She did not worry about her forced abstinence from solid food, because she was unable to chew properly, having but six teeth in the lower, with no corresponding ones in the upper, jaw.

She is a remarkably healthy woman in other respects, having a strong heart and lungs, a clear complexion with a good deal of color in her cheeks. She is a woman of simple tastes; born in the country, in the north of Italy; active, and a woman of good common-sense. It is a difficult thing to keep her in bed in any ordinary illness, and she does not complain of pain unless it is severe. I saw her first in February, 1898. She came to me for advice on account of the pain which she felt in her stomach. There was a hardness in the pyloric region which was painful on pressure. All solid food was vomited soon after it was taken. My diagnosis was cancer of the pylorus. At a subsequent visit a few weeks later an operation for the removal of the growth was suggested and agreed upon, and the patient entered St. Luke's Hospital in San Francisco.

OPERATION.

On the 24th of February, 1898, Dr. Samuel G. Boyd assisting,¹ strict antisepsis being observed, the patient was etherized. I made an incision three inches in length half-way between the ensiform process and the umbilicus. The omentum was adherent to the parietal peritoneum the entire length of the incision. Once the peritoneum was opened, a hard mass was felt at the pyloric extremity of the stomach, extending over half its surface and involving its walls. The stomach was freely movable. There were no nodules in the omentum; but there were several of varying size, from two inches in diameter and less, upon, and attached to, the surface of the stomach. The tumor could be felt extending into the interior of the stomach, just beyond the middle line. The abdominal fat was over an inch in thickness, and it was necessary to enlarge the incision to seven inches in length, so that it extended from the ensiform process to a point an inch below the umbilicus. Hot gauzes frequently renewed completely surrounded the wound, covering everything but the part operated upon. I then began to tie off the omentum from the greater curvature, using catgut for ligatures; the length tied off at any one time did not exceed half an inch; the omentum was divided between the ligatures. After three or four inches of the greater omentum were tied off, work was begun on the lesser omentum; and so, by working alternately on

¹ Among those present at this operation were Dr. J. V. D. Middleton, Deputy Surgeon-General U. S. Army; Dr. Charles S. Mann; Dr. C. C. H. Carlson; Drs. Robert Porter (who gave the anesthetic), and Samuel Huntington of the staff of St. Luke's Hospital.

the two omenta, rotating the stomach as was necessary, the tying off was accomplished. The most difficult part of the work was on the lesser curvature, it being in the deepest part of the wound. When both curvatures were free from omenta, the duodenum was clamped, and a ligature of silk being placed around the duodenum half an inch above the clamp, the tissue was divided by scissors between the two; the divided extremity was carefully washed in salt solution and wrapped in iodoform gauze. The stomach was then free for any desired manipulation.

As the tumor occupied already more than half the organ, with a hardness extending some two inches beyond along the greater curvature, I decided to remove the entire stomach above the cardiac orifice. The gastro-splenic omentum was tied off, the stomach held with moderate tension, and a clamp was placed just above its cardiac orifice. An intestinal clamp was then placed on the esophagus a little over an inch higher up, and the tissue was divided between the two, nearest the cardiac orifice. The esophageal extremity was then washed and wrapped in iodoform gauze; the esophageal clamp followed each movement of the diaphragm. I then brought up the duodenum, and found it would touch the esophagus without undue tension. It was somewhat a question of time, as the patient's pulse had become weakened by the length of the operation; so that I decided to use the Murphy button for approximation of the parts instead of suturing them. One-half of a No. 3 Murphy button (fifteen-sixteenths of an inch in diameter) was then inserted in the duodenum and fixed in position. Finding that there was not room enough in the divided end of the esophagus to apply the button, I seized the free extremity with a T-forceps and applied the clamp higher up, so that it was placed at the nearest possible point to the diaphragm. I then had an inch and a quarter of free esophagus of equal diameter throughout, measuring an inch and an eighth across — the mucous coat was entirely distinct from the muscular and glided freely upon it. A fine-silk drawing suture was placed an eighth of an inch from the free extremity, and the other half of the Murphy button was applied. New iodoform gauze was packed over the bottom of the wound, and the halves of the button were pressed together. When the clamps which had been but a short time on the duodenum and esophagus were removed, the button was drawn up about half an inch by the muscular contraction of the esophagus. As the parts on either side of the button became distended, they were apparently of equal diameter; the tension on the parts was sufficient to keep them suspended over the iodoform gauze; no Lembert sutures were used, as the parts were in close apposition. The iodoform gauze was then removed from the bottom of the wound, the omenta arranged somewhat, and the peritoneal cavity closed with a continuous catgut suture; silk-worm-gut closed the abdominal incision.

The operation occupied two hours and a quarter. There was practically no loss of blood in removing the stomach; two ounces representing the entire amount, and that came from the abdominal incision and the peritoneal adhesions. The anesthesia was effected by chloroform at first, until unconsciousness was reached, and then ether was administered throughout the operation; eleven ounces of the latter were used. The patient had an exceedingly fat abdomen, so that the incision through its walls was necessarily a long one.

The photograph of the stomach was taken shortly after the operation. The stomach was empty and in the same condition as when it was removed from the abdomen. The measurements were taken from a tracing as it lay on a sheet of paper, and are as follows: lesser curvature five and three-fourths inches; greater curvature (not including the outline of the growth which measures two inches more) ten and a half inches; greatest width between the curvatures three inches; across the pyloric orifice, three-quarters of an inch; across the cardiac orifice, one inch; weight, six ounces and seven drachms Troy. The pins are attached to exactly opposite points of each orifice; the sagging noticed being from the lax tissue and not from any removal of substance. The growth was chiefly on the anterior surface of the stomach; it extended internally beyond the middle line, with a hardness along two-thirds of the greater curvature. It was impossible to introduce anything larger than a sound through the pyloric orifice on account of the growth. The posterior view shows a puckering of the thin walls of the part of the stomach which is yet healthy; the mass of omentum near the cardiac orifice makes the latter appear wider than it really is. It shows also the outline of the growth as it extends along the inside of the stomach and greater curvature. At either end half an inch of tissue may be added which was enfolded in the Murphy button.²

TREATMENT.

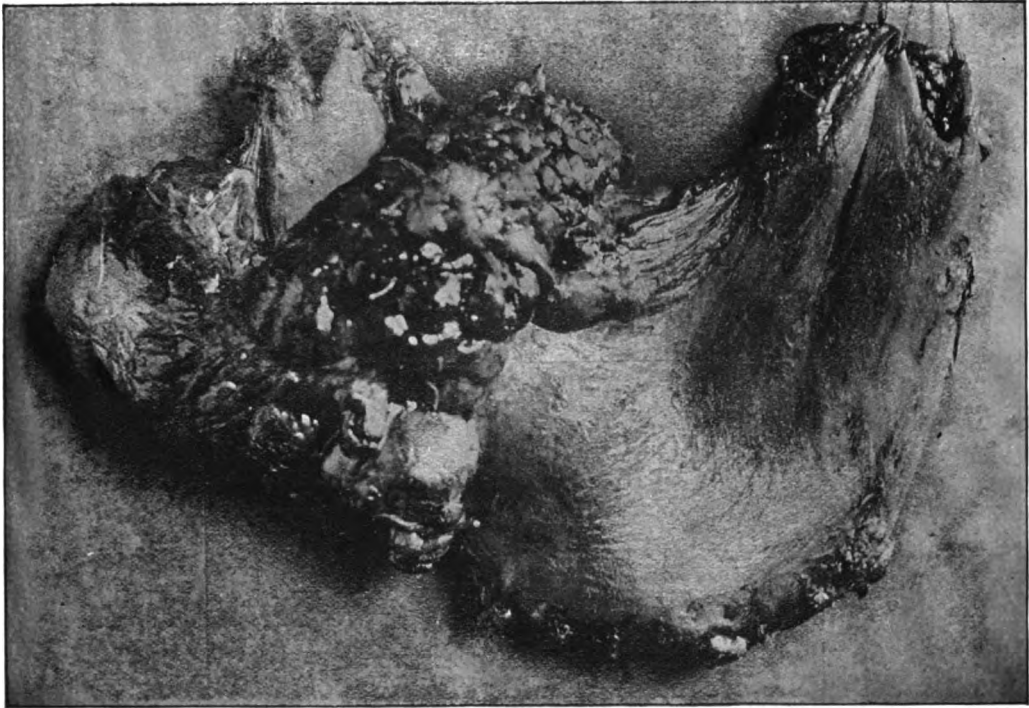
February 24th. At noon, after the operation, pulse 116, temperature 98°, an enema of brandy and water was given, and three hours after an enema of eggs, peptonoids, milk and broth; these nutrient enemata were continued every four hours. The patient was very restless and thirsty. An eighth of a grain of morphine was given subcutaneously, and the mouth was frequently washed out with water. Towards evening she vomited about two ounces of bloody mucus. Evening pulse 110, temperature 100.8°. A quarter of a grain of morphine was given subcutaneously, and the limbs and chest were rubbed with alcohol. At midnight, pulse 108, temperature 100°. The longest sleep at any one time was not over an hour; but there were many short naps, which refreshed the patient.

February 25th. Pulse 96, temperature 99.6°. Excessive thirst, but no pain; no vomiting, but twice belched some gas. Thus far no water was allowed the patient, but the mouth was constantly moistened. Evening pulse 100, temperature 99.6°. Amount of urine passed since the operation 20 ounces. Hot water in three-drachm doses was given every hour, which soon relieved the intense thirst. Midnight pulse 98, temperature 99.6°. Considerable flatus passed.

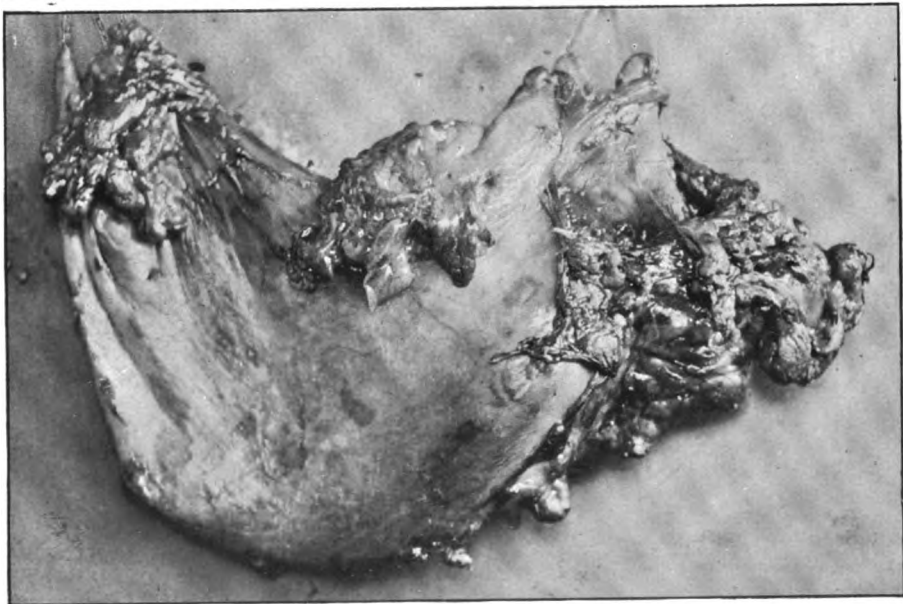
February 26th. Pulse 100, temperature 99.7°. Claret and water in two-drachm doses, varied occasionally with the same amount of hot black coffee, or chicken broth, were given. Evening pulse 100, temperature 100°. The act of swallowing does not cause any inconvenience, but after two teaspoonsful are taken there is no desire for more. As to pain, it is indefinite both as to situation and amount; generally near the abdominal incision. Midnight pulse 96, temperature 99.8°.

February 27th. Pulse 92, temperature 100°. Up to this time only two-drachm doses of any liquid were given, but now the patient is able to take a little more than double the quantity at each time. Coffee, with milk and chicken broth with an egg beaten up in it. Each day the back and extremities are bathed in alcohol. Evening pulse 94, temperature 100°. The restlessness is still marked, and without the morphine at night there would be little sleep. Complaints of burning in urinating; this was relieved by

² I am indebted to Mr. P. S. Bruguère, of San Francisco, for the photographs, and also for the microscopical examination, which showed the growth to be adeno-carcinoma.



Stomach. — Anterior View.



Stomach. — Posterior View.



The Patient Seven Weeks after the Operation.

lithia water. The nutritive enemata given every four hours up to this day have been discontinued. The first free movement of the bowels occurred to-day by the aid of a simple enema; it was partly formed and without indigested food. Midnight pulse 94, temperature 100.2°.

February 28th. Pulse 92, temperature 100°. During the day the patient had a free, dark brown, well-formed movement of the bowels. Evening pulse 98, temperature 100.6°. There was some pain in the abdomen, which was relieved by rubbing. A fresh egg slightly boiled was relished by the patient, who said that "it tasted nice and sweet." Midnight pulse 99, temperature 99.6°.

March 1st. Pulse 94, temperature 99.4°. The patient takes six drachms of some liquid nourishment every hour night and day, missing it only when asleep. She complains of a sense of fulness at the seat of the Murphy button if she takes a teaspoonful too quickly after another, and often it needs some persuasion to make her take sufficient nourishment. Midnight pulse 100, temperature 100°.

March 2d. Pulse 96, temperature 99.4°. In the afternoon a well-formed movement. The patient complains of faintness and dizziness, probably due to the small amount of nourishment she receives, as it is impossible to make her take more than six drachms at any one time. Evening pulse 100, temperature 100.7°. The temperature has been taken always by the rectum. Midnight pulse 100, temperature 100.2°.

March 3d. Pulse 96, temperature 100.2°. A seidlitz powder was given in two doses, half an hour apart; and a partly-formed movement of the bowels resulted two hours later. Again the bowels moved in the afternoon. One or two eggs were taken daily, broth, gruels made with germea or barley, prune juice, and coffee with milk. Evening pulse 106, temperature 101°. Midnight same.

March 4th. Pulse 98, temperature 100.2°. In addition to claret and water, drachm doses of whiskey were given every three hours, and, in order to give more nourishment the nutritive enemata were given every four hours, day and night; these consisted of two eggs, an ounce of brandy and half an ounce of peptonoids or bovine. Evening pulse 106, temperature 101°. Midnight pulse 108, temperature 100.6°.

March 5th. Tongue dry, with a brown coating. The restlessness has somewhat disappeared and the sleep is more quiet and refreshing. Pulse 102, temperature 100.6°. The dressing of the wound was changed; there was primary union throughout the incision except at the uppermost stitch, where there was what appeared to be a stitch abscess discharging a drachm of pus. The patient feeling remarkably well, sat up in bed and was photographed. The amount of liquid taken by the mouth in the last twenty-four hours was a little more than a pint; this did not include two eggs; there were also five nutritive enemata given. Urine voided, one pint. Evening pulse 104, temperature 101.2°. Midnight pulse 100, temperature 100°.

March 6th. Pulse 102, temperature 100.6°. During the day the patient had four semi-solid movements. All the sutures were removed from the abdominal incision. The tongue is moist and clear. Since the operation there has not been the least fetor of the breath, nor has there been any vomiting except the mucus vomited soon after the operation. To-day the patient took a drachm of sweet oil with a view of facilitating the downward passage of the Murphy button. This was regurgitated soon after, the patient declaring that it was not Italian oil. As there was a burning sensation in the lower abdomen soon after the enemata were given, the brandy was omitted. Evening pulse 110, temperature 100.2°. Midnight pulse 106, temperature 99.6°.

March 8th. Pulse 100, temperature 99.8°. There is to day a distress after swallowing and a pain in the upper part of the abdomen. Evening pulse 104, temperature 99.6°. Midnight pulse 98, temperature 99.4°.

March 9th. Pulse 100, temperature 99.4°. There is still a burning pain in swallowing, and a disinclination to drink on that account. During the morning about two ounces of pure bile were vomited, the bile having a distinct

smell of urine. Two hours later, after a sleep of three-quarters of an hour, the patient awoke, and found she could swallow easily. There was no longer an obstruction to the passage of food, and she said she did not know where the food went to, so easily did it pass along. Evidently the Murphy button had left the position which it had occupied for thirteen days. The amount of nourishment now given each time was three ounces and more. Evening pulse 100, temperature 99.8°. Midnight pulse 98, temperature 99.6°. The nutritive enemata were discontinued.

March 10th. Pulse 102, temperature 99.4°. The amount of liquid taken in the last twenty-four hours was 37 ounces; amount of urine voided, 27 ounces. The supposed stitch-hole abscess had been discharging but slightly; and as the opening was too minute to admit of anything larger than a probe, chloroform was given and the opening dilated. A shred of necrosed tissue was removed with the forceps, the wound washed out with a hot normal salt solution, and packed with iodoform gauze; it extended about two inches beneath the peritoneum, and was well walled off from the cavity of the abdomen. (The wound became smaller daily and ten days subsequently was closed.) Evening pulse 108, temperature 100°. Two semi-solid movements of the bowels in the afternoon. Midnight pulse 98, temperature 99.6°. Vin Mariani in half-ounce doses was given instead of whiskey.

March 11th. Pulse 104, temperature 99.8°. Vomited two ounces of flaxseed tea as soon as it was given, but after a short nap took two ounces of hot coffee with milk, and retained it. Evening pulse 100, temperature 99.6°. Midnight pulse 102, temperature 99°.

March 12th. Pulse 100, temperature 99.6°. Evening and midnight the same.

March 13th. For breakfast this morning the patient had some minced chicken, a cup of coffee, a soft boiled egg, half a slice of toast and two ounces of water. Pulse 108, temperature 99°. From this time food was given at regular intervals of three hours. The soups given were vegetable purées of green peas, asparagus or artichokes. The patient has never cared for bread in any form even before her illness. She wishes no salt either in gruels or soups. Evening pulse 106, temperature 100°.

March 14th. Pulse 100, temperature 100°. After two tablespoonsful of castor oil given in hot coffee, the patient had two soft movements rather grayish in color. There is still much restlessness. Evening pulse 100, temperature 100.4°.

March 15th. Pulse 108, temperature 99.7°. Two ounces and a half of castor oil were given this morning; two hours after, a formed bowel movement, followed by two liquid movements in the afternoon. The patient sat up in a chair for an hour and a half without fatigue. Evening pulse 100, temperature 99.8°. Midnight pulse 98, temperature 99°.

March 16th. Pulse 102, temperature 98.8°. The patient took twelve oysters at noon. These were the native Californian oysters, quite small, resembling those of Ostend. Sat up to-day two hours and a half. Evening pulse 104, temperature 100°.

March 17th. Pulse 106, temperature 99.4°. The patient's nourishment to-day consisted of: breakfast—cup of coffee with milk, a soft boiled egg, a third of a baked apple; noon—a cup of green-pea soup and a dozen oysters, an ounce of milk with somatose; afternoon—some orange jelly, one raw egg, half a cup of pea soup, a dozen oysters; evening—half a cup of asparagus soup; in the intervals she took four drachms of whiskey with water, and an ounce and a half of Vin Mariani. Had a natural movement from bowels. Evening pulse 102, temperature 100°. Midnight pulse 98, temperature 99.4°.

March 18th. Pulse 92, temperature 99.2°. The patient is up in a chair daily and walks a little in the room. In addition to two dozen oysters she took a part of a lamb chop and several spoonfuls of ice cream. In the afternoon her pulse was 76, temperature 99.8°. In the evening pulse 104, temperature 100°. Had a formed movement of the

bowels. On account of the tendency of the pulse to lag, a twentieth-grain granule of strychnine was given every four hours during the day.

March 19th. Pulse 92, temperature 99.4°. Patient on the hospital piazza in a rolling chair for nearly two hours. In addition to her regular nourishment the patient enjoyed a squab. There were two formed movements of the bowels to-day.

March 20th. Pulse 98, temperature 99.4°. Thus far the patient has not vomited food; sometimes a teaspoonful of sweet oil would be regurgitated; and to-day when some bromo-caffeine was given for restlessness, a part of it came up—there was no sensation of sickness, however, and some nourishment taken almost immediately afterwards was retained. Somatose is added to milk whenever it is taken. The patient was on the piazza for three hours to-day, sleeping at times. Three formed movements of the bowels. Evening pulse 98, temperature 100.4°.

March 21st. Pulse 100, temperature 100.6°. An ounce and a half of castor oil taken at noon gave two free liquid movements in the afternoon. The respiration was rather labored at times, apparently due to nervousness. Evening pulse 96, temperature 101.4°. Seven ounces of mulled wine were given at bedtime. Slept at intervals. Midnight pulse 100, temperature 100.6°.

March 22d. Pulse 100, temperature 101.4°. Has still times when the breathing is difficult. Three hours out of doors. In the afternoon the patient vomited part of some minced chicken she had taken. Pulse 108, temperature 101.6°. Midnight pulse 98, temperature 100.4°.

March 23d. Pulse 102, temperature 100.6°. After a comfortable night's rest, the best perhaps since the operation, the patient walked from her room to the piazza, where she sat for two hours in the sun, and then walked back to the room; two hours again in the afternoon on the piazza. Evening pulse 110, temperature 102.4°. Midnight pulse 106, temperature 101.6°.

March 24th. Pulse 102, temperature 101.8°. A week ago the patient weighed 116 pounds; to-day she weighed 121 pounds, a gain of five pounds in one week. Evening pulse 108, temperature 101.8°. There is a slight hardness in a line with the middle of the incision extending an inch and a half on either side; there is no redness whatever of the skin, but deep pressure is somewhat painful. The gradually rising temperature suggested an abscess; the position in the line of the transverse colon suggested an impaction of fecal matter with the Murphy button; the free and natural movements of the bowels daily led me rather to regard the swelling as due to a collection of pus.

March 25th. Pulse 104, temperature 101.2°. A high enema of olive oil was given with no effect on the hard swelling. The patient has some difficulty in breathing, entirely due to the pressure of the swelling. The pulsations of the aorta are distinctly felt through it. Evening pulse 108, temperature 102°. I decided to cut down on the mass, and the patient being prepared and etherized, two inches of the primary incision were carefully opened. The union was strong. There were adhesions throughout the line of incision. While exploring at the depth of an inch with the left finger, pus was reached, and some six ounces evacuated; it was quite odorless; it was washed out with a hot solution. Four sutures were taken, and the abscess sac was packed with iodoform gauze. Adjacent tissues were soft and in a healthy condition. No sign of the Murphy button. There were no shreds of tissue evacuated with the pus. After this the patient was fed with nutritive enemata in addition to the nourishment taken by the mouth. When she came out of the ether she vomited some six ounces of mucus. Midnight pulse 110, temperature 101.8°. Two doses of a quarter of a grain of morphine were given at four-hour intervals.

March 26th. Pulse 100, temperature 101°. Evening pulse 104, temperature 100.5°. Patient very restless and troubled with much flatus.

March 27th. Pulse 96, temperature 99°. Two loose bowel movements. The drainage was removed from the

wound, which was thoroughly washed with salt solution and packed with fresh gauze. The discharge was moderate and odorless. Evening pulse 96, temperature 99°. No pain whatever.

March 28th. Patient out in the reclining position on the piazza most of the day. For the first time since the operation she said that she felt really hungry, and the way she ate a squab amply proved it. It is still a question with her, how to produce sleep without an opiate: sulfonal, trional, bromo-caffeine and bromide of potash all excite rather than soothe the restlessness. Morphine alone is sufficient, if given in quarter-grain doses. Of course, the peristaltic action of the bowels is affected by the morphine as well as by the removal of the stomach, and that may delay the passage of the Murphy button, which, by the way, produces no discomfort wherever it may be.

March 30th. Pulse 96, temperature 99.8°. The earthquake at midnight excited the patient somewhat.

March 31st. Pulse 90, temperature 99.4°. It is five weeks to-day since the operation. The patient weighed 116 pounds, losing what she had gained the previous week. Pulse 84, temperature 99°. The abscess sac is free from discharge, but is daily packed and washed out with hot normal salt solution, of which it now holds a drachm. The patient is taking more milk at times, and enjoys it.

April 4th. Pulse 78, temperature 99°. There is much restlessness at night and more natural sleep. The morphine, which had been gradually left off, is now omitted. The patient is on the piazza all day, walks alone, reads the papers and is very active and cheerful.

April 7th. Patient again weighed, with the gain of one pound.

April 10th. The following shows the amount of food taken by the patient to-day: at 6.30, a cup of coffee and a raw egg; at 10, two dozen oysters and a bowl of broth; at 1, half a broiled chicken with toast and stewed strawberries; at 5, half a broiled chicken, two slices of toast and a cup of tea. Pulse 84, temperature 99°.

April 11th. The abscess sac is completely closed. The patient's condition is excellent.

April 14th. Weight, 122 pounds, a gain of six pounds in the last week.

REMARKS.

The operation for removal of the stomach belongs to middle or old age, the disease necessitating it occurring at these periods. Where there are no adhesions the operation is not very difficult; with ordinary care hemorrhage is not likely to occur. The effect of surgical shock upon the patient is most to be feared, and should be guarded against by *heat*, stimulants and quick work in operating. The Murphy button saves much time and has proved of great service in the present case. It is not always possible to do esophago-duodenostomy, and the button would do as well in esophago-enterostomy, for it could be applied where it would be impossible to make a sound suture, as in cases where the esophageal end is very short. If, however, careful sewing could be done quickly and accurately over some form of tube that could be pulled out through the mouth when the sutures were placed, it would save considerable worry to the patient and surgeon. The cases could be well imagined which would be difficult to nourish for two weeks through the openings of a No. 3 button. Besides the impossibility of taking much nourishment at a time, there is the difficulty of swallowing, which the presence of the button in the esophagus causes by reflex action. This reflex action was very slightly marked in this patient; but with a more sensitive nervous system it might be enough to prevent swallowing sufficient nourishment to sustain life, especially if added to this it became impossible to retain nutritive enemata.

It would seem easy, from what is seen in anatomical plates, to join the duodenum with the esophagus, for apparently they are on the same plane; but in reality the esophageal orifice is on a higher plane and behind the pyloric orifice. If the duodenum is not bound down by adhesions, it can be approximated without much tension to within an inch of the diaphragm allowing the abdominal part of the esophagus to be only two centimetres in length, which is Cruveilhier's estimate.³ There is even then room to place a purse-string suture and apply the Murphy button. It would seem that tension on the elastic tissue of the abdominal esophagus would easily give an increased length; it does stretch to a certain point, but it is disappointing and much more limited than one would suppose.⁴ From the experience which this case gives, I think it would be easier to tear the esophagus than to pull it down from its opening in the diaphragm. It may have been that the esophageal clamp interfered with its elasticity, but it seemed at the time of the operation as if the stretching could be accomplished much more easily sidewise than lengthwise. A slight gain in the length of the esophagus can be made if the clamp is applied vertically instead of sideways; there is thus less chance of making an oblique cut in the division of the esophagus. Unless there is enlargement of the left lobe of the liver, there is much more room to work in than would be supposed, especially if the abdominal incision is a large one. In fat patients the incision can hardly be less than seven inches in length, and then there is no room to spare.

In the treatment of this case no attempt has been made to predigest the nourishment which was given to the patient. The precaution was taken, however, to supply easily digested food; and when meat was allowed it was cut in very small pieces. The food was taken slowly, whether liquid or solid. It is no hardship for the patient to live on simple food, for she has done so all her life; and especially, as age has advanced, she has been obliged to eat food that required the least chewing. The food was given of medium temperature; water was taken as it came from the pipe and wine as it stood in the room; iced cream, of which the patient was particularly fond, was taken slowly so that it dissolved in the mouth before it was swallowed. At first everything was too salt; as the patient got well, she wished salt on both eggs and oysters. The amount of flatus in the bowels was enough to cause pain only a few times in the early part of her illness. The urine has been normal throughout. Never since the operation has any undigested food been seen in the movements from the bowels, and for the most part these have been wholly or partly formed. The patient has vomited but a few times since the operation; twice after etherizations, twice after some laxative had been given, once after the button left its place, and twice after coughing—not more than six ounces at any one time, generally much less. On three or four occasions a mouthful of food would be regurgitated—an oyster, some shreds of meat or a few teaspoonfuls of coffee. As a usual thing the food was well retained and well digested. Milk, which would sustain most patients under such circumstances, was not liked, and an important food

was thus unavailable. The patient's skin is in a natural condition without any dryness; this may be due to the thorough washing which the entire body has had daily since the operation. The symptom which gave the most anxiety after the operation was the restlessness, which was unusually marked. This was without doubt the result of the surgical shock, which was caused by the removal of so important an organ as the stomach, and the interfering with its vessels and nerves.

The season of the year in California, with mild sunny days, and the careful and constant nursing, are among the factors which made the operation a success. The age of the patient counted for something also; the effects of the change of life had long passed by, and there had been for many years an even condition of good health. Many old people can stand in a surgical point of view much more than is generally supposed. The patient was not worried about herself. All she wished for was to be restored to health; how this was to be accomplished she never asked, and to this day she does not know that her stomach has been removed. She has a fine color; complains of nothing so far as the functions of her body go; eats whatever she wishes; has no pain whatever; is of a very cheerful disposition. She is out of doors most of the day from 10 till 5 o'clock, taking occasional walks around the hospital grounds; her temperature and pulse are normal; she sleeps well without an opiate. Although she has food every three hours, she feels quite hungry at times, and feels that she could eat twice as much as is given to her. She is gaining in weight; and her general condition at the present time, April 14th, seven weeks after the operation, is satisfactory in every respect. She leaves the hospital to-day for her home.

In conclusion, I wish to acknowledge my great indebtedness to Dr. Carl Schlatter, of Zurich, for his description of the operation and subsequent treatment, which has been invaluable to me in making this case successful.

SOME ASPECTS OF MEDICAL PRACTICE.¹

BY ALEXANDER ROVINSKY, M.D., BOSTON.

"Amicus Plato, sed major amica veritas."

It is somewhat of an unpleasant and too often ungrateful task to introduce into the midst of festivities an unpopular subject. The propriety of interrupting this evening's occasion, participated in as it is by men whose daily occupation is of too sombre a nature and lacking the ordinary pleasantries of life, may well be questioned, if it were not for the fact that the subject to be brought before your notice is of so serious a nature as to demand our closest attention.

Our self-glorifications in the great progress made in all the domains of the healing art, have been rather rudely disturbed by the tendency observed of late to discuss in a more or less candid manner the various abuses and evils from which the profession has been suffering uncomplainingly for some time past. I allude here particularly to the hospital and dispensary abuses—a subject that is engaging at the present time the earnest attention of a very great portion of the profession, and is even beginning to find its way into the lay press. Ordinary considerations of humanity

³ Anatomie Descriptive, vol. II, p. 113.

⁴ "In its abdominal portion (if at any time we admit an abdominal portion) the esophagus is *en rapport* with the esophageal opening of the diaphragm, to which it is very solidly adherent." Cruveilhier, vol. II, p. 113.

¹ Read at the first Annual Meeting of the Boston Medical Society, March 15, 1898.

and love of, as well as respect for, our profession, which we never fail to opportunely designate as honorable, grand, and so on, demand of us a thorough investigation of this most important subject.

That commercialism, with all its blighting and corrupting influences, has invaded the ranks of the profession, is a fact become stale by frequent repetition. To be sure, the medical profession, as an organic part of the modern social system, cannot escape the tendencies of the age; but who will deny that a great deal of the evil is remediable, and can be corrected within, and by, the medical profession itself? By shutting our eyes and persistently denying, as is done in certain medical quarters, without the least shadow of investigation, the existence of a truly deplorable condition of things, we certainly do not even approach the solution of this problem.

Although both the young and the older practitioners are subjected to these abuses, it is particularly the former who are the greatest sufferers by them, and as in the young generation lies the seed of, and the hope for, the future, the question acquires a still greater importance. It is the younger practitioner, with his plastic mind, with his enthusiasm for work, his ability to grasp, and readiness to utilize, new discoveries, who paves the way for scientific progress and professional perfection. The older man, the "experienced" practitioner, is frequently unyielding, and is liable to become too conservative to embrace new teachings; his conservatism—an excellent quality, when needful—becomes to him a second nature, from which he can very often, but with difficulty, dissociate himself.

To bring into clearer light what follows, let us take a cursory survey of things medical in general, as the question before us is far more complicated than it may seem at a first glance, and, moreover, by putting cause and effect together we may hope to arrive at a clear understanding of it.

The 146 medical schools of the country instruct some 23,000 young men, and graduate annually about 5,000 new doctors. As compared with Europe, which can only boast of 130 schools, we doubtlessly suffer from what the political economist would designate as an "overproduction" of medical schools, resulting, as could be expected, in an overcrowding of the professional market. Driven into the field of competition, the majority of these schools crowd each other in cities large and small, causing the degree M.D. to become a somewhat cheap article, so much so, that its possessors will in the near future be placed in a position similar to what was once threatened by a celebrated minister of France, who declared, that he would create so many dukes, "that it would be a shame not to be a duke, and no honor to be one."

The medical schools being the least endowed—by private donations or State assistance—of all the professional schools, their existence (outside of the few connected, not nominally, however, with a university) depends entirely on the tuition fee of the students, and these last must therefore be attracted to them by all and every means; as a result we see the doors of the great majority of these institutions all but widely open to any one who evinces any inclination to enter, the examinations being often of such a puerile nature as to give no adequate idea of the student's educational standing. The fact has been complained of, that too many improvident young men enter our medical schools without any idea as to their chances of success in the voca-

tion. It seems to me, however, that the fault lies, not with the young men but with the schools, many of which in their eager hunt for students lure them by promises of but a nominal entrance examination, small tuition fee, and easy means to graduation. A great number of these young men could well remain where they are, growing up into useful members of the community, with an activity in a social sphere suited to their abilities and natural inclinations; as it is, they naturally tend in the direction of the medical school, which holds out for them such bright prospects in the future.

I will here but touch on the fact, that in the schools which lack the clinical and laboratory requisites—and of such there are many!—didactic instruction is unfortunately prevalent to the exclusion almost entirely of bedside experience; while in others valuable time is wasted by the student in attending upon clinical and hospital practice before he has had the time to master the rudiments of medical and surgical principles, his mind being then in a condition when he is unable to assimilate and profit by the experience offered to him.

Turning now to the recent graduate, we find—and so does he very soon—that he is thrown into competing with difficulties of which he very likely had not the slightest idea; for no profession is made up of so many heterogeneous elements as is the case with what is known popularly under the broad appellation of the profession of medicine. Besides the great numbers of graduates of the many schools,² there is the by no means inconsiderable class of the so-called irregular practitioners, or, in common parlance, quacks, who cannot as yet be eradicated by any State legislation. They constitute a class of people of a wide range of variable intellectual and moral aptitude; in the majority of cases living by imposition on the ignorant and credulous, under the cloak of religion or falsified science. Quite frequently they are people who have grown tired of less congenial occupations and are not bothered by such trivialities as conscience, honesty, scrupulousness and similar rubbish. They are the ones who flood our "great" dailies with advertisements of a questionable nature, adorned by likenesses of prominent members of the community—strange to say, mostly ministers of the Gospel, who in glowing terms laud to the skies the efficiency of this or that nostrum, in curing their ailments, after "the greatest doctors of both hemispheres gave up all hopes." One bottle—nay, at times, one dose—was sufficient to revive the shattered system which was on the verge of being gathered to its forefathers!³

In certain parts of our large cities the foreign medical men—German, French, Russian, Swiss, etc.,—form the predominating class of the practitioners of medicine. Some of these are regular practitioners from the other side; but the greater part of them came here because they have no right to practise in Europe. As an example, in Germany and Switzerland a holder of the degree of M.D. is not entitled to practise. To obtain this right he must pass a very rigid State examination, in comparison with which the examination

² We have proportionately twice as many physicians as Canada; three times as many as England; four times as many as France; five times as many as Germany; or eight times as many as Russia. The average ratio is one physician to 550 inhabitants; but in some States it is as low as one to 350, or even less.

³ The other day I chanced to come across the following advertising gem: "Mrs. X. Y. Z. [a well-known abortionist], having established a new office, is ready to attend on ladies suffering from pericoronitis, ovariotomy, gynaecology, and similar (sic!) female complaints." And this in a Boston newspaper—horrible dictu!

for the degree is but a mere trifle. The State recognizes as lawful practitioners only those physicians who have passed their State examinations. They alone have a license to practise; they alone can receive appointments to any medical office. Those who passed only the university examinations for the degree can hold no appointments, and have no legal right to insist upon the payment of fees from their patients. The value of this degree may be judged from the fact, that the Illinois State Board of Health (the pioneer body in medical reforms) adopted March 31, 1891, a rule, according to which the holders of the foreign degree of M.D. must pass an examination before that body to be permitted to practise in Illinois, unless they were allowed to practise medicine in the countries from which they received their degrees. As a matter of fact, a very considerable percentage of those who come up for their State examinations in Europe are rejected annually by the examining commission. These, and many who did not even attempt the State examinations, come here and enjoy privileges denied them at home.

A condition quite prevalent in the middle-class and poorer districts of the large cities is the practice of medicine in which many of the druggists are engaged, to the detriment of both the overcrowded profession and the unsuspecting public. The extent of this practice, on the one hand, and the ease with which combinations of drugs in the attractive and convenient form of pills, tablets, etc., can be readily made or obtained, induce many of the practitioners to act the part of the druggist for their patients. This, however, they do reluctantly, considering it rightly as an invasion of the apothecaries' rights; but they are compelled to resort to it as a means of self-protection, for the unscrupulous druggist will frequently prevail on a patient by promises of a cheaper and more rapid cure. At the same time, the formation of the habit of using ready-made tablets and pills, while seemingly doing away with the necessity of prescribing, relegates the art of prescription-writing to a second place, and it is little by little entirely banished from the armamentarium of the busy practitioner, who thus deprives himself of his most potent weapon — the knowledge of skilfully combining effective drugs.

Characteristic of the large city are also the numerous societies, lodges and similar bodies, the practice among which is known under the generic name of contract practice. A certain number of men bind themselves together for various purposes, among these also to employ a physician for the whole body of members belonging thereto; the fee for the individual member is usually very small, frequently outrageously so, while the demands made on the physician are often of such a nature as to render his life — especially if he possess any self-respect at all — a long chain of misery and degradation: for the self-will of your unorganized mob, which frequently acts suggestively or subconsciously under the control of one or more leaders, cannot be compared with the organized tyranny of a well-regulated body of men, who are constantly aware of the fact that your material well-being depends entirely on their good-will. They brook no independence on the part of the physician, they admit no self-respect; as if mortgaged, you belong to them body and soul, and they exploit you — for there are among them such as are well-to-do and even rich — in a manner altogether indescribable. Sad as this condition of affairs is, the

competition among physicians is so intense that almost Tammany Hall tactics are resorted to by some of the competing candidates for employment by these bodies, as fair and honest means have been found time and again to fail.

There are but few agencies that debase and corrupt both the physician and the patient to the extent that this is accomplished by the contract practice. The extremely low remuneration compels the physician to engage himself to several societies, and physicians who have to attend several hundred families, that may live in widely separated parts of the city, are by no means rare; the hurry-scurry of the medical attendance breeds superficial habits of examination and a certain contempt for a thorough investigation of the case, which may with some grow into routine habits, bringing about results disastrous to both the physician and patient. On the other hand, just like the hospital abuse, these practices corrupt the patients as well. It is either human nature or the part of it constituting folly, to set but a slight value on articles obtained cheaply or free of charge, and to estimate the commercial worth of an article paid for, usually proportionately to the price paid, and not to its immediate utility or the results obtained from its use. The value of a commodity in the market being dependent on the law of supply and demand, it is self-evident that, the supply exceeding the demand, the value of the commodity depreciates, becomes low. Apply this to the physician — whose work in this case is the commodity — and the results, although somewhat unpleasant to contemplate, are identically the same.

But the greatest, the most formidable competitor of the young as well as of the older practitioner, of the recent graduate as well as of the skilled and mature physician, of the poor and rich alike, is the unbounded abuse of the various hospital and dispensary charities. This subject has been so thoroughly discussed and ventilated of late, that it remains for me but to give a brief *résumé* of the opinions held by competent men concerning this matter. The fact has been established beyond peradventure, that we have many more hospitals and dispensaries than the community is in urgent need of. The majority of these institutions openly violate the very fundamental stipulations of their charters, which accord them the right and privilege — for such it is — of assisting the sick poor who are unable to obtain the needed medical aid in any other way; whereas these institutions treat thousands upon thousands of persons who are well able to pay their private medical advisers. They thus, on the one hand, rob the indigent sick of the medical aid to which they are justly and legitimately entitled, by indiscriminately wasting it on the rich and well-to-do; again, by affording medical service to this last class of patients, they invade the clientele of the average practitioner, intruding without any absolute necessity therefor upon his legitimate means for subsistence. It is claimed that in some cities these institutions, under the cloak of charity, serve but too frequently as sub-offices for some of the attending physicians; it also is unfortunately too true, that no serious, honest attempts are ever made by these institutions to discriminate between those who cannot pay, and those who will not pay.⁴ As a result

⁴ Even vaccination, which is done but once during the year, and entails, therefore, but a very slight expenditure even on the poorest, has been monopolized by our dispensaries where this trifling operation is performed gratis upon thousands and thousands of children of the well-to-do or even rich, who can, surely at least once a year, pay a private physician.

of such a condition of affairs, pauperism is systematically encouraged, the moral sense of the applicant is blunted, while by withdrawing patients from the practice of so many physicians a sort of professional proletariat is being created, whose ranks swell rapidly, and who are driven into resorting to means for a livelihood which are frequently unprofessional and at times dangerously near to dishonest; and as the bitter struggle for existence becomes more and more intense, they are bound to tend lower and lower; the so-called professional etiquette that they see violated on every side by men whom they were taught to consider as leaders becomes in the course of time a dead letter to them; the scientific side of medicine is gradually lost sight of, and the great science is converted into a trade—a change to be seriously deplored, as it is bound sooner or later to breed contempt from the intelligent portion of the community towards such tradesmen.

The above is but a feeble, and certainly imperfect attempt to depict the condition of things medical as seen at the present day. I dare, however, trust that it will give at least an approximate idea of what it was intended to describe, and with the knowledge thus derived of cause and effect, we may attempt to suggest some possible remedies. Right here I am tempted to present an interesting, although by no means novel fact. While scanning the list of vocations of the members of the fifty-fifth Congress, I was struck with the meagre representation of the profession of medicine as compared with other professional callings; out of a membership of 356 there were but five physicians; the same obtains to a greater or lesser extent in almost every State legislature in the Union. It occurs to me that the average physician does not take a sufficiently active participation in the government affairs of the city, State or Union; and I cannot help thinking how much different would be the social status of the profession if it had a sufficiently strong representation in the legislative assemblies. What a humiliating spectacle to witness the impotence of the representatives of a profession which counts among its members many able and intelligent citizens, to pass a bill for the regulation—loose and trivial though it be—of the practice of medicine in a civilized community! Verily, a spectacle for the gods! With the creation of a representation in the legislative assemblies of the land, there will soon appear that *esprit de corps* which forms the very essence of a united profession, and which is so sadly lacking in the profession of this day. It will then be possible to effectively repel the many unjust attacks for which the profession has for a long time past served as a tempting target on the part of many who would not dare attack in a like manner any other profession.

One of the important causes that tend to increase the number of our medical schools is the ease with which charters for such institutions are granted by a great number of our State legislatures. In doing so they often commit a grievous error, as the degree of M.D., which these institutions are empowered to grant, is more than an honorary title. It confers upon its holder a right to the confidence and patronage of the people as regards their health, the most vital element of their existence. It puts him into the possession of honorable means, whereby it becomes "a property right of great pecuniary value." No other degree, *per se*, possesses a similar significance or valuation. The possessor of the degree of M.D. comes in closer contact with the community than does a member of

any other profession; the scope of the physician's activity is much greater than that of the theologian or lawyer, since, as Mr. Evarts justly remarks, "there are many who have no property to be cared for, and there are some with regard to whose possession of soul there may be a question; but everybody has a body which is at times liable to require skilled management to avoid suffering and death, and enable it to do its work, although some bodies, it must be confessed, are hardly worth preserving."⁵

No charter must, therefore, be granted to any corporation for the purpose of establishing a medical school, unless it can prove that the community stands in urgent need of one; it must also give evidence of its ability to equip the prospective school with all the requisite laboratories, show its connection with hospitals, dispensaries, etc. It is not going too far to require that the instructors in these schools should be men of recognized worth and ability, and not such as use their "professorships" as an advertising medium with their clientele. The medical schools of our cities should, by some manner of means, either be joined into one large institution, or they should be required by an act of the legislature to attach themselves to the neighboring university, as a department thereof.⁶ This would give them a prestige not obtainable in any other way, while at the same time it may also give them the opportunity of enjoying, at least to some extent, the beneficence of the numerous donations, which are showered yearly by the hundreds of thousands into the coffers of the universities of the land. As soon as the medical schools will thus change their now quasi-independent character, their dependence on the tuition-fee of the students will be greatly diminished, and the standard of admission as well as of teaching is certain to be raised. You will observe, in connection with this, that with the exception of very few independent medical schools, the best ones constitute departments of universities.

As regards the hospital and dispensary abuses, the only measure of effective struggle against this growing evil would be the establishment of a method whereby a distinction, more or less accurate, could be made between those who are entitled to treatment, and those who are not. It would seem to me, that if every applicant be required to present some sort of a certificate from either his religious adviser, or his landlord, or from any physician, or generally some reputable citizen, the number of applicants would be materially lessened, without in the least affecting the really needy. This is by no means an ideal measure, but it seems possible and not difficult of application; and even if it present opportunities for being abused, it will nevertheless be of undoubted benefit, if employed seriously, honestly, and as thoroughly as possible. Such an application of this method can only be effected by the concerted efforts of the attending staff and the trustees of the hospitals. It would also be practicable for each institution to employ a corps of inspectors, whose duty it should be to investigate either the majority of the applicants, or at least those who would seem suspicious. This the institutions owe, both to the community and the profession. The lat-

⁵ The Forum, vol. xiv, p. 729.

⁶ In this connection it may be interesting to note that Chicago has twelve medical schools (not including three post-graduate ones), or three more than the whole of Russia, or as many as Austria, Switzerland and Denmark combined. St. Louis is not to be outdone with her nine schools. New York, Baltimore and Cincinnati possess seven schools each; and so on.

ter, we may rest assured, will be only too ready to co-operate with the hospital and dispensary authorities in the application of any measures that will tend to eradicate or circumscribe the evil as much as possible.

It is high time that our State legislatures take a hand in the amelioration of medical affairs in the land. The *laissez-faire* system, with its resulting individualism run mad, has about reached its highest stage of development. Decisive, intelligent interference will in the course of one or two decades revolutionize our medical schools, correct, as far as it lies in human power, to do so, the various medical abuses, and elevate the profession to a position where it shall command the respect, not only of the immediate community, but of the whole civilized world. I am well aware of the fact, that such utterances will call out a cry against paternalism, and will be stamped as an invasion of the personal rights of the individual, fostering attempts on the constitutional liberty of the freeborn citizen, etc. I can hear this cry all around me. I heard it from the lips of the opponents of the State regulation of the practice of medicine; and I could not help paraphrasing mentally Jefferson's famous saying about patriotism being the refuge of a certain class of people. But facts are the best arguments. The same hue and cry was raised while State regulation of the practice of medicine was being introduced into almost every State of the Union. But the system has existed for ten years or so, and it has resulted in an undoubted improvement of the general educational standard of the profession. I have no doubt, but that, when rigorously enforced, the State regulation of the practice of medicine will become a potent factor in the medical reform movement.

While discussing the question of State interference for the regulation of this practice, W. H. Furrington, an eminent New York lawyer, counsel for the New York County Medical Society, proved some ten years ago, that such interference is constitutional, and that the principle involved in this sort of legislation stands settled and approved by the Supreme Court of the United States, and that of every lesser community, before which it had been brought.⁷ It is the great principle of *salus populi* — the principle of security and self-protection against fraud and ignorance.

It is by all means time that we had not only city or State, but also national representation. There should be a Central National Bureau of Medicine, as a branch of the Department of the Interior, endowed with discretionary powers, serving as the highest tribunal on medical questions of a national character, such as quarantining, appointment of medical coroners, unification of the State Boards of Examination, and questions of a like nature.

These propositions, as I am well aware, will be relegated by some into the domains of Utopia, or dismissed as impracticable or premature. But there is an undercurrent in the present social life of the community, the rumblings of which are heard by every attentive ear, and which is bound, sooner or later, to appear on the surface; and that is the tendency to widen more and more the sphere of government and to increase its power — wisely and with circumspection — as against the encroachments of individuals or corporations; for no individual, however powerful, no

corporation of individuals, however mighty, can or will benefit the community at large, as much as can the State, forming a part of the people, kept in check by the people, and legislating for the people.

Clinical Department.

PROSTATECTOMY BY COMBINED SUPRAPUBIC AND PERINEAL METHODS.¹

RECOVERY WITH COMPLETE RESTORATION OF THE BLADDER FUNCTION.

BY F. S. WATSON, M.D., BOSTON.

THE patient, who is fifty-four years of age, four years ago began to experience symptoms of prostatic obstruction, dysuria and frequent urination; these gradually increased and not long afterward he had an attack of acute retention of urine. Attempts to relieve this were fruitless and resulted in a severe hematuria, probably due to a false passage. The hemorrhages have continued periodically ever since, at times being abundant. Pyuria appeared shortly afterward and has continued ever since.

The acute retention relieved itself after about twenty-four hours; but there was great difficulty in urinating for ten days. Since this time, although there has been no actual retention, dysuria, frequent and painful micturition have become worse; the frequency is now from one to two hours in the daytime, and three or four times during the night.

Patient's condition has become threatening. There has been a marked loss of flesh and strength. The urine contains a considerable quantity of blood, pus and mucus.

Examination by rectum shows a very large bilateral hypertrophy of the prostate.

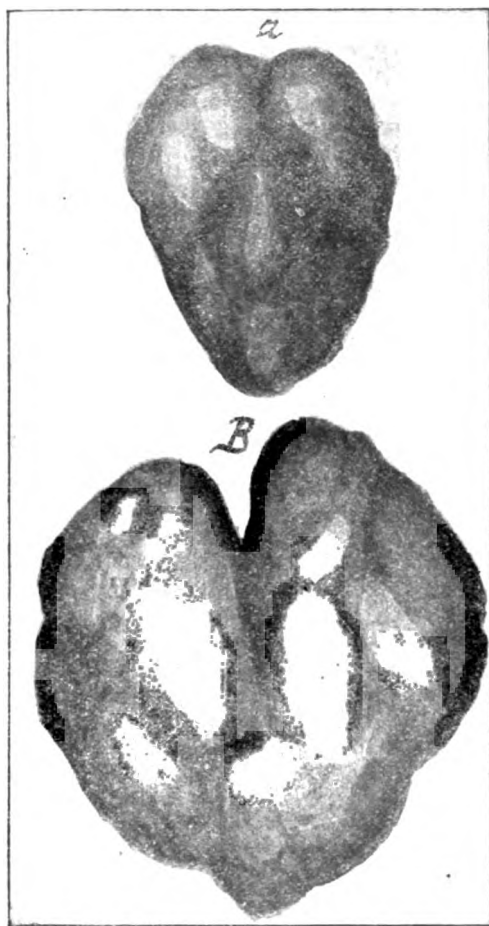
Operation, combined suprapubic and perineal prostatectomy, December 26, 1897. The abdominal wall was very fat and dependent and in order to make the bladder more accessible the fascia covering the abdominal muscles was exposed by a *crescentic incision extending from one anterior superior spinous process to the other*, with its convexity towards, and its middle point just above, the upper margin of the symphysis pubis. The prevesical space was then opened by the usual vertical incision in the median line between the recti and the pyramidales muscles. It contained a large quantity of fat. The peritoneal fold was raised about four finger-breadths above the symphysis by Petersen's rectal bag, containing nine ounces of water, which was filled first and then the bladder was injected with ten ounces of fluid (sterilized salt solution). The patient was placed in Trendelenburg's posture. Just before doing this the bladder was held by a tenaculum passed through its anterior wall immediately below the insertion of the peritoneal fold. It was then opened by a longitudinal cut of an inch in length. The index finger was inserted, and the bladder was temporarily sutured to the edges of the abdominal wound by a stitch on either side.

The mucous membrane of the bladder was normal to the touch, and no stone was present. The two lateral lobes of the prostate were largely hypertrophied,

⁷ American Social Science Association, session September 5, 1886, p. 29.

¹ Read before the Surgical Section of the Suffolk District Medical Society, March 2, 1896.

the left much more than the right. There were marked intravesical projections from both lobes. That from the left being about the size of a small pullet's egg. Upon the upper part of this was an ulcerated surface which extended into the fissure just below *B* in the illustration and which was evidently the source of the hemorrhages that had occurred from time to time. The slightest touch upon it caused an abundant bleeding. An external perineal urethrotomy was then performed to provide for subsequent drainage and also to bring the prostatic lobes better within reach from within the bladder by pushing them upward from below by the finger-tip inserted in the perineal wound. The



mucous membrane and fibrous capsule over the top of the intravesical projection of the left lobe was incised with a scalpel, and a large fibroid growth (see Illustration *B*) could then be easily enucleated by the finger. Its measurements were as follows: length two and a half, breadth two, and thickness one and a half inches respectively. Hemorrhage was free but not serious. (*A* in the illustration represents the middle lobe, which was removed in the same manner.) A Cabot bladder tampon was packed into the space left by the removal of the tumor, the lower string being carried out through the perineal wound.

The patient bore the operation well; there was but little shock. The crescentic skin flap was incised in the middle, to allow of the passage of the drainage-tubes, which were two parallel rubber ones having a hole cut

in them close to the ends. The bladder was sutured close around the tubes, and the abdominal wound was united at its upper and lower angles and the skin flap sutured by a separate row of stitches. The rectal bag was retained until after the removal of the left lobe had been effected. The tampon was removed on the third day, in doing this the suprapubic drainage-tubes were pulled out and could not be replaced; there was consequently no further drainage. The skin incision was kept open at its middle point by a small wick of iodoform gauze.

The suprapubic bladder wound healed on the fourteenth day and voluntary urination was re-established at once. The urinary stream, which prior to the operation had been weak and very small, was now full, and projected with force.

On the twenty-first day blood ceased to appear in the urine. The intervals of urination after the closure of the bladder wound were lengthened at first to two hours, and shortly afterward to four; and the patient slept from five to seven hours undisturbed. There was no residual urine.

The urine after the fourth week contained much less pus and mucus than before the operation, and pain and bladder irritability had wholly subsided.

The patient's strength and general condition rapidly improved. There was but very little rise of the patient's pulse or temperature at any time after the operation.

On the twenty-sixth day the patient was out of bed.

The perineal wound closed at the end of a month. The suprapubic superficial abdominal wound did not close until the end of the sixth week, when the patient was discharged well. He has continued in excellent condition both as to his general health and the local conditions ever since (April 30th).

This case is an example of the striking benefits that in a certain number of instances follow the operation of suprapubic prostatectomy, and which may be hoped for in a very fair proportion of the cases, when, as in the present instance, the surgeon has the opportunity of performing it upon a patient whose age and general condition are such as to lessen the risk of a fatal result of the operation which must always remain a serious one and whose bladder has not yet lost its expulsive power, or at any rate the capability of regaining it when the obstacle to the outflow of urine has been removed.

The writer would call attention also to the suprapubic crescentic incision through the skin as described above, as being of decided advantage in very fat abdomens, in that it shortens the distance to the bladder which would otherwise be very great, and thereby greatly facilitates the subsequent operative steps for this and some other intravesical conditions. The skin flap, formed by dissecting upward from this incision, is intended only to include the tissues down to the fascia covering the abdominal muscles. The flap is turned upward over the belly, and may be conveniently attached to the skin above by one stitch passed through the latter and the edge of the flap to keep it out of the way until the end of the operation.

This growth is an excellent example of the fibromyomata, which are so similar to those of the uterus, and which, as in a certain proportion of the latter, form a distinct mass within a more or less well-defined capsule, from which they can be readily enucleated by the finger. Their removal is greatly facilitated by the com-

bined perineal and suprapubic operation, the detail of which I will not describe here, but merely note that by it the prostate is made much more accessible by being pressed upward toward the suprapubic or downward toward the perineal incision, according to which of the two routes is to be utilized for its removal.

The only other point to which I would call attention is the complete control of the compressor urethra muscle, or outer voluntary sphincter of the bladder, in preventing the outflow of the urine, for it is presumable in this case, that the inner sphincter must have been too seriously injured to have been able to retain the urine unaided, and there the control of the bladder in this respect has been complete.

Reports of Societies.

AMERICAN SURGICAL ASSOCIATION.

NEW ORLEANS, APRIL 19-21, 1898.

FIRST DAY. — MORNING SESSION.

AFTER DR. J. HOLT, of New Orleans, had delivered an Address of Welcome and the various committees had made their reports, the President of the Association, DR. T. F. PREWITT, delivered his address upon

THE FUTURE OF THE ASSOCIATION.

After referring fully to the organization of the Society and to some of its former presidents, especially its founder, he dwelt upon the standing in the profession of its present and future members, and especially to their advances in the art of surgery. He also referred to the many signs of progress of the nineteenth century, alluding among other things to the railroads, steamboats, telegraph, telephone and electric-light, as well as to the rapid strides made in surgery, and concluded by urging the hearty co-operation of all distinguished surgical practitioners, writers and teachers in enabling the Association to occupy the proud position its founders destined for it.

AFTERNOON SESSION.

DR. CHARLES A. POWERS, of Denver, read a paper entitled

THE QUESTION OF OPERATIVE INTERFERENCE IN RECENT SIMPLE FRACTURES OF THE PATELLA.

The author first referred to the writings of Dennis, Bull, Czerny and Myles upon this important subject, and then commented upon the two most important tests, the structural and functional, for these fractures. As to the mechanism, he believed that the majority of these fractures were due to muscular action, the patient endeavoring to save himself from falling, strongly contracting the quadriceps femoris. He showed, in treating on the question of the pathology, that there are but two fragments in the fracture due to muscular action, the upper one being generally the larger, the fractured surfaces being, as a rule, irregular and the line of fracture transverse or oblique. The author enumerated the conditions tending to cause imperfect union and the obstacles to union as follows:

(1) Separation of the fragments, due to (a) retraction of the upper fragment from contraction of the quadriceps femoris, and a slight drawing down of the

lower fragment through a shortening of the ligamentum patellæ; (b) effused blood.

(2) Tilting of the fragments (this may be present to a marked degree and unrecognizable without operation).

(3) Rupture of the tendinous expansion of the vasti and of the lateral portions of the capsule of the joint.

(4) Prolapse of pre-patella tissues into the breach.

(5) Atrophy of the quadriceps femoris due to (a) disease, (b) arthritis, (c) marked contusion of the muscle, (d) blood extravasated from the joint through the rent in the upper part of the capsule.

(6) Arthritis of the knee-joint, this possibly resulting in —

(7) Adhesion of the patella.

Further, though of little value, may be added —

(8) Natural poverty of the blood supplied to the bone (rendered negative by the fact that the vertical fractures healed satisfactorily) and

(9) Exceptional tendency to osteitis, seen in fat people, in the aged and in certain conditions of the blood.

The speaker considered that as to the non-operative management of fractured patella by mechanical means no better evidence of the unsatisfactory results need be adduced than the large number of devices and plans which have been resorted to from time to time. Some of the devices were spoken of, among others the so-called "Dutch" method or massage, Malgaigne's hooks, and the use of properly applied bandages or strips of plaster followed by a plaster-of-Paris dressing or a splint.

He then quoted fully from numerous personal letters from prominent surgeons all over the United States, each giving his opinion and preference as to the treatment of this fracture. The results of various kinds of treatment by many different surgeons, and the comparative mortalities from these various methods, were given in elaborate statistics which followed.

Dr. Powers then took up the subject at great length under the headings of "Limitations Attending the Operation," "Selection of Cases," "Time of Operation," "Operative Procedures," "Dangers" and "Immediate and Remote Results of Operative Management, and Comparison of these Results with those Attained without Operation."

DR. J. D. BRYANT, of New York, in computing the comparative worth of the different methods, in his discussion on Dr. Powers's paper, referred to the work of the late Prof. Frank H. Hamilton on this subject, and called attention to the importance of the following determining factors: (1) the degree of physical infliction; (2) the duration of confinement in bed, as bearing respectively on the comfort, health and business demands of the patient; (3) the character and importance of the inherent and acquired complications of respective methods of action; and (4) the final burdens imposed by the sequels of different plans of cures.

He again quoted to some extent from the writings of Hamilton, and discussed these four points at great length.

The doctor said that, except in cases emphasized by a special indication, he was not inclined to the practice of suturing the patella, but thought it a justifiable measure in selected cases.

At present the technique which he employs consists in making a short vertical incision; removing the blood-clots from the fractured borders of the bone, along with

the interposed fibrous tissue that is sometimes present, and cleansing the joint cavity; draining the joint with a few strands of silkworm-gut at the outer side; uniting the fracture with a small wire so placed as to cause retention and proper apposition of the fragments; closure of the wound, antiseptic dressing and fixation in bed for two weeks, followed by plaster-of-Paris spica, and out of bed on crutches.

In closing he called especial attention to a mechanical method wholly or in part employed by himself during the last twenty years in the treatment of fifteen cases of simple fracture, for which he claimed greater comfort and efficiency, less danger, only a week's confinement to bed, and results equal to the best of other mechanical methods. Drawings illustrating this method were shown.

DR. M. H. RICHARDSON, of Boston, spoke of the importance of good surroundings, good health of the patient, and surgical experience in aseptic technique in the treatment of these cases. He thought wiring should be seriously considered if one cannot get complete control of extension owing to extensive laceration. He also thought that in ordinary cases the time of confinement should be six months. He thought that a wound of the knee-joint was especially liable to infection. When the failure of the conservative methods had been demonstrated, he thought the wiring of the patella should be considered.

DR. JAMES E. MOORE, of Minneapolis, thought that the opinion of American surgeons of the present day was represented by Dr. Powers's paper, believing operative results to be better than the results reported by using non-operative methods, and commented on such a low mortality as less than one percent. He believed that an open arthrotomy would be less fatal than the passage of ligatures around the patella, and strongly advocated asepsis, proper environment and experience in performing operations about the knee-joint. If immediately operated upon, he believed the approximation of the fragments would thus become easier. By avoiding over-distention and interference with circulation he believed better results would be gotten by temporary drainage. However, he did not feel that the amount of separation was any index as to the future usefulness of the limb.

DR. W. S. HALSTED, of Baltimore, was in favor of draining only when the tissues were not able to take care of the micro-organismal infection themselves. He advocated the immediate opening of the joints and thoroughly washing out, and the wearing of rubber gloves during these operations.

DR. POWERS closed the discussion by stating that he had expressed the opinion in the body of his paper, that if a surgeon felt able to make one of these operations, he ought to feel equally safe in dispensing with drainage.

DR. NICHOLAS SENN, of Chicago, read a paper entitled

THE ETIOLOGY AND CLASSIFICATION OF CYSTITIS.

After speaking fully on the anatomico-physiological construction of the bladder and referring to its lack of absorptive power, he spoke of the etiology, which he divided into, under the head of predisposing causes, retention of urine, abnormal urine, tumors, unrest of the bladder, calculus and foreign bodies, exposure to cold, venous stasis and trauma. Under the head of exciting causes, he mentioned first infection by the

urethra, infection by the urine, infection from adjacent organs, infection from the blood, etc.

After mentioning Guyon's classification, he took up the question of classification, dividing it into the anatomical, pathological, clinical and bacteriological. He sub-divided the anatomical into paracystitis, pericystitis, interstitial cystitis, cystitis; the pathological into suppurative cystitis, exudative cystitis, catarrhal cystitis, ulcerative cystitis, exfoliative cystitis; the clinical into chronic cystitis and acute cystitis; and the bacteriological into streptococcus infection, staphylococcus infection, bacillus coli-communis infection, diplo-bacillus infection, saprophytic infection, gonococcus infection, erysipelatos infection, tubercular infection.

The details of many experiments were given in full, and each division and subdivision was discussed at great length.

DR. JOHN PARMENTER, of Buffalo, in discussing the part of the paper in reference to the bladder not possessing any power of absorption, mentioned his experiment of injecting eight drops of sulphuric ether in a drachm of water into the bladders of twelve healthy men and detecting the odor of ether on the breath one minute after the injection. He considered that the infection was most of the time due to a combination of traumatism and micro-organisms and urged for greater care in the disinfection of the urethra before sounding.

DR. W. S. HALSTED, of Baltimore, referring to the work of Dr. Young, one of his assistants, mentioned that Dr. Young found that the gonococcus was sometimes present in neutral urine, sometimes in acid urine and once in alkaline.

DR. ALEXANDER, of New York, said that lymph nodules were usually present in the bladder and ureters, and made exceptions to Dr. Senn's statement that there were no glands in the mucous membrane of the bladder. He stated that sometimes these lymph nodules give rise to a peculiar inflammation which he termed "nodular cystitis." He mentioned some recent investigations in which he found accessory prostatic glands around the trigone of the bladder in a proportion of normal bladders in which the middle portion of the prostate was enlarged. He thought that inflammation was caused by retention, and that in moderate cases of stricture an appreciable amount of residual urine was found, and that sexual hyperemia resulted in a moderate prostatic congestion.

In regard to traumatism he thought it was often due to destructive diseases brought about by irregular catheterization, and said that when a patient with prostatic enlargement is catheterized with an absolutely clean catheter infection will still take place at times. He also said that if a patient is catheterized at nine o'clock in the morning, again at five or six, and not again until the next day at noon overdistention will produce trauma and the more rapid occurrence of infection.

DR. SENN, in closing the discussion, stated that he believed the smell of ether on the breath so quickly in Dr. Parmenter's cases was the result more of a process of diffusion than of absorption, and that the vesical mucous membrane did not possess power of absorption but the urethra and neck of the bladder did.

SECOND DAY. — MORNING SESSION.

DR. W. S. HALSTED, of Baltimore, read a paper entitled

OPERATIVE TREATMENT OF CARCINOMA OF THE BREAST.

After fully discussing a large number of cases seen and operated upon and giving the statistics of the results for the past nine years at the Johns Hopkins Hospital, he then, at length and in detail, referred to the undescribed, not frequent, cancerous tumors of the breast, to the relative malignancy of the various breast cancers, to the frequency, significance and treatment of cancerous supraclavicular glands; after which he spoke in detail of the operations themselves, as performed by himself and his assistants.

DR. CHARLES B. NANCREDÉ, of Ann Arbor, in referring to this subject, remarked he would like to say a word in regard to age. He said that he was struck by the large number of cases of cancer of the breast occurring under thirty-five years of age, and that he had had a limited experience of between 200 and 300 cases. As an example, he cited a case of a young girl who, in the early part of her twenty-fifth year, unquestionably had the same tumor as at her nineteenth year and who was operated upon by him last winter. He inquired if any one's experience coincided with his as to the large number of cases occurring under the age of thirty.

DR. ROSWELL PARK, of Buffalo, asked what Dr. Halsted's teachings were with regard to endothelioma.

DR. M. H. RICHARDSON, of Boston, spoke of the good work done by Dr. Halsted in the past on the above subject, and remarked that he himself had noticed and observed many cases where there had been no infection of the axillary glands. He referred to two cases where he had made a diagnosis of a tumor merely upon the symptom of pain. He believed there was usually early recurrence of cases where the axillary glands were affected. In referring to the value of gross appearances, he commented on a case where the microscopic appearance did not at all agree with the diagnosis although the clinical appearance proved its correctness. In his opinion he did not consider a case as cured in three years, as he had seen recurrences in from seven to ten years.

DR. J. D. BRYANT, of New York, stated that he had found enlarged glands in the axilla in some cases where the increase in size was not sufficient to warrant the belief that the glands were infected until a microscopic examination had been made. He strongly commented on the fact that patients possessing a morbid growth would not only keep this to themselves but were encouraged by their physicians in so doing.

DR. J. McFADDEN GASTON, of Atlanta, spoke on the occasional spontaneous disappearance of carcinomatous formation, and concluded his remarks by inquiring if constitutional measures employed synchronously had been observed to have any effect.

DR. ROSWELL PARK continued the discussion by stating that he had for several years been collecting data upon the subject of the spontaneous disappearance of tumors, and was quite anxious to get as much information as possible, and desired to hear the different opinions expressed on the question.

DR. RUDOLF MATAS, of New Orleans, at length and very ably discussed this subject, giving a full synopsis of 27 operations for malignant diseases of the breast or its immediate vicinity, which cases had come under his personal notice between the years of 1887 and 1898, 26 of which were women, and one a man,

and said that there were no fatal cases from operative causes. Eleven of these cases are living and well, and one has had three recurrences in three years and ten months. In two cases death resulted from accidental causes not connected with the operation. In performing these operations two incisions were made, eight gross operations and 17 complete (Halsted and Meyer) operations. One case which survived two years died finally from metastatic cancer of the uterus. The male operated upon is still living, eight years later, and is free from local recurrence.

The author then referred to 15 complete operations performed since November, 1894, and spoke at length of the result, bearing on all the details; and in conclusion he gave a history of five cases that are living without recurrences after complete operation.

DR. F. H. GERRISH, of Portland, alluded to the excellent work done by Dr. Halsted, and referred to the fact that the text-books contain scarcely anything bearing on the subject of this paper. He then commented on the various operations that had been performed, and showed how step by step the present method was arrived at. He considered as one of the most important points the necessity of the removal of all mammary tumors whether benign or malignant. He laid great emphasis upon the thoroughness with which operations should be performed and at length of the time required to do them. After discussing the hopefulness of the prognosis in these cases at the present time, he referred to the fact that many cases alluded to in the author's paper would until recent years have been regarded as absolutely unfit for operation.

DR. HALSTED, in closing, commented on the excellent results obtained by Dr. Matas when performing the old operations. As to age, he had seen one case of about twenty-eight or thirty and one of cancer of the liver at twenty-one. He was unable to give a very satisfactory answer to Dr. Park's inquiry as to the proper teaching regarding endotheliomata. He recalled one typical case of cancer of the breast and another of epithelioma of the face which had disappeared spontaneously.

DR. ROSWELL PARK, of Buffalo, read

AN INQUIRY INTO THE ETIOLOGY OF CANCER, WITH SOME REFERENCE TO THE LATEST INVESTIGATIONS OF THE ITALIAN PATHOLOGISTS.

The author stated that to handle this problem successfully pathologists of the future must begin by studying tumor formation in the vegetable world before studying it in the animal, that is, the comparative method of investigation must be adopted, as the xylomata or woody tumors are so exceedingly common that they have failed to attract the attention which they deserve.

The lipomata are the most frequent, frequently multiple, usually symmetrical and of traumatic origin.

The fibromata are usually of traumatic origin and the majority contain foreign bodies, which have acted as the exciting cause.

Myofibroma of the uterus is, strictly speaking, a leiomyoma, and, according to Billroth, always commences by formation around a small blood-vessel.

Chondroma is most common in infancy and childhood, and practically inseparable from rickets.

Osteoma is often seen as an exostosis or as an ossification.

Adenoma, as every surgeon knows, frequently becomes converted into carcinoma.

The only two theories worthy of consideration in reference to malignant tumors are the embryonal and parasitic. In the vegetable kingdom it is hard to distinguish between various grades of malignancy, but, nevertheless, that tumors kill a large proportion of trees and shrubs will not be disputed by those who have studied the subject.

Cancer has been happily defined as an abortive attempt of a gland epithelium to reproduce itself, and sarcoma is a similar process pertaining to mesoplastic cells. It used to be taught that cancer was exceedingly prevalent at certain ages; but the author stated that, living in a region where cancer is exceedingly prevalent, he had witnessed the ravages of the disease in many relatively young people.

Among the many clinical considerations pointing to the study of cancer the writer mentioned influence of sex, age, complexion, heredity, size of heart, arteries, and lungs, and geographical locality.

As to the influence of sex, Williams has found for every 100 males dying of cancer 223 females perished from the same disease. With regard to age, the most prolific cancer-producing age is between fifty-five and sixty-five. Williams has also found that at least among females the disease is twice as frequent in brunettes as in blondes, while Beddoe states that red-haired individuals are the most exempt of all. As to the heredity, this is one of the most vexed questions, and opinions differ very much. Patients with large hearts, arteries, and small lungs are often the subject of cancer, whereas, in tubercular patients the opposite is true. Speaking geographically, cancer is certainly on the increase in certain parts of the world; and so true is this that the neighborhood of Buffalo, N. Y., has been termed "tropic of cancer."

The question has often arisen as to whether cancer can be disseminated through the agency of insects, and whether water, especially in the neighborhood of woods, could act as a medium of transport, which is the belief at present conceded.

Up to the present time experimental auto-inoculations have practically failed.

Taking up the subject from a historical standpoint, the writer, with Roncali, divided the past few years into four periods, that is, the period of inaccurate observation and erroneous conclusions, which began with Nepveu in 1872; second, the period of accurate observations and inaccurate conclusions, which is essentially the official period, and began with the discovery by Halle, Virchow, and Gubler of protozoa in human tumors; third, the iconoclastic period of doubt as to the accuracy of all past researches, beginning with Russell's work in 1890 and ending with the researches of Banti and Misser in 1894; and, fourth, the period of successful inoculation practised for the most part by Italian pathologists.

As an illustration of Roncali's method of securing culture, he prepared in one case 60 tubes of distilled water containing a little sugar and acid, and in each of them he placed small bits of tumor cut with a sterilized knife. These were kept at 37° C. for ten days, when surface growths were found upon 47 of them, which when examined in the hanging drop were easily recognized as blastomycetes.

In conclusion, the author states that when it comes to the detection of fungi in microscopic sections, the

methods are more or less complicated and require considerable training in special manipulation and observation, and gives in detail two methods for this work.

DR. J. McFADDEN GASTON, of Atlanta, read a paper entitled

REMEDIAL MEASURES IN OBSTRUCTION OF THE COMMON BILE-DUCT.

The author stated that although the physician usually treats cases of jaundice which result from the temporary closure or constriction of the common bile-duct, yet these conditions are the precursors of derangements which frequently require the aid of a surgeon. Although at the beginning it may be only a functional disturbance, the termination is usually in organic derangements.

He took up the subject of the treatment of jaundice by the use of pilocarpine, upon which Murphy had laid such great stress, but he believed that the majority of practitioners relied more upon the use of the phosphate of soda. However, he stated that very good results have followed the use of olive oil internally, and probably this was the best remedy to-day. The surgeon is confronted with various conditions needing operative interference after all other means of treatment for biliary complications have been tried without arresting the obstruction of the common duct. He believed that it was possible for a stenosis of the walls of the duct to exist, or a partial obstruction of its lumen due to a gall-stone without complete occlusion of the canal, so that a certain amount of bile would be able to pass. He referred to the fact that Fenger had demonstrated the possibility of a gall-stone being so located as to form a valvular closure; and though one may artificially provide a means of escape for the bile by connecting the opening in the gall-bladder in the abdominal wall, yet relief to the cholemia is not always afforded, and the condition may continue even to a fatal termination. He expressed himself as in favor of an incision on a line an inch and a half below the border of the costal cartilages in cases presenting no enlargement of the liver, which incision should be about three inches in length.

The author stated that he had on a previous occasion spoken unfavorably of exploratory puncture, and did not consider it should be recognized as a means of diagnosis or a method of treatment. He then mentioned some of the methods employed to relieve obstruction of the common bile-duct by gall-stones, among others the breaking up of the calculi by the needle, crushing by padded forceps, forcing them into the gall-bladder or duodenum, catheterization and excision through the walls of the duct. It is not always possible to attach the gall-bladder to the parietal opening, nor can one always suture the incision in the wall of the duct when the stone is extracted, so that it is sometimes necessary to employ drainage and leave the ends of the gauze hanging out of the wound.

He then referred to operations he had performed upon three white women for obstruction of the common bile-duct, in which he made a fistulous opening for the bile externally, but the cholemia still persisted as long as the patient survived. Occasionally the attachment of the incised gall-bladder to the parietal opening, where there has been temporary impediment to the flow of bile through the duct, has relieved the

obstruction, and been followed later by a restoration of the biliary flow. The author's experience has been that an artificial opening from the gall-bladder or the common duct into the alimentary canal has only been thought proper when other methods have failed to overcome complete occlusion of the duct.

The anastomosis may be effected with the duodenum or the small intestine, but the method with the colon which is sometimes employed is the least desirable of all. He then referred to his experiments upon dogs, which demonstrated the feasibility of a fistulous communication of the gall-bladder with the bowel. From statistics he showed that the various methods are comparatively free from danger and are really attended with considerable success.

DR. H. W. CUSHING, of Boston, read a paper entitled

TRAUMATIC RUPTURE OF THE PANCREAS; FORMATION OF HEMORRHAGIC CYST; OPERATION, FOLLOWED BY A PANCREATIC FISTULA AND RECOVERY.

The rupture of the pancreas in this case was caused by a blow on the abdomen, and was rapidly followed by the formation of a large pancreatic cyst closely resembling an abdominal aneurism.

Five weeks after the injury the author evacuated the cyst through an incision in the abdominal wall and put in drainage. The site of the pancreatic injury was located near the omental tubercle; but it was considered inadvisable to suture it on account of the patient's condition, as he was dangerously ill the next two days. On the following day there was spontaneous evacuation of a subphrenic abscess through a bronchus, following which rapid improvement in the patient's condition was noted. Considerable pancreatic fluid escaped from the abdominal wound; the cyst rapidly became merely a small sinus, and this healed seventy-seven days after the operation. During the patient's convalescence the author took advantage of the rare opportunity to investigate the character of pancreatic fluid in the human subject. It was found to be strongly alkaline in reaction, and was of specific gravity of 1.011 instead of 1.030 as quoted by many authors.

When this fluid came in contact with the epidermis it destroyed it, much to the patient's annoyance, but it did not effect the peritoneum or the granulation tissue. Upon measuring the amount of secretion it was found to vary from 5 to 60 c. c. per hour, the maximum being during digestion. The total amount per day was almost double that generally stated by physiologists, who claim about 300 c. c., whereas in this case it amounted to from 500 to 600 c. c.

The item of the greatest interest in this case was the peculiar character of the injury which caused the lesion, and the difficulty of diagnosis, as well as the complication of a double parotitis and its connection with the abdominal injuries, to say nothing of torticollis, a subphrenic abscess, with its origin and course and the exceptional opportunity to investigate human pancreatic fluid. So far as the author knows, on no previous occasion has the rate of flow and accurate measurement of this fluid been made. Fifteen months after the operation the patient was well, and seemed none the worse for his experience.

DR. W. W. KEEN, of Philadelphia, referred to a case which came under his observation, in which there

was no wasting, no sugar in the urine, or no fatty stools. He inclined to the belief that usually simply opening and draining these cases was sufficient.

DR. W. S. HALSTED, of Baltimore, stated that he had seen four or five cases of pancreatic cysts.

DR. P. F. PREWITT, of St. Louis, referred to a case of enlarged spleen which he observed some fifteen years ago, and, when operated upon, a cyst of the pancreas was found connected with it. The woman made a perfect recovery. He also stated that he had seen a case which had lost much flesh while confined to bed for four months with a large tumor-like swelling in the median line. Upon opening this much pus and fluid escaped, and it was noted that the tumor extended to the backbone, making a counter-opening necessary. A calculus, believed to be of pancreatic origin, was found and removed, and was probably the cause of the tumor.

DR. N. B. CARSON, of St. Louis, read a paper entitled

CEREBELLAR TUMORS.

The author stated that his principal desire in preparing this paper was to call attention to a much-neglected symptom in these cases, namely, the so-called "cranial cracked-pot sound." This sound is due to a separation of the sutures from internal pressure caused by an accumulation of fluid in the brain cavities, owing to pressure upon the veins of Galen.

The author quoted from the history and treatment of four cases where he had been able to elicit this sound, but cautioned surgeons against mistaking it for certain high-pitched sounds that are occasionally present in certain brain tumors. The sound, he claimed, may be present at any time of life (before the sutures have become permanently united).

The author ascertained that hydrocephalus was present in 22 out of 49 cases of cerebellar tumors, which, in his opinion, improve the importance of eliciting the cracked-pot sound. He stated that on only two occasions was he able to find any reference made to this sound, showing that it had been much neglected.

DR. W. W. KEEN, of Philadelphia, mentioned a case in which this sound was first elicited by a patient himself, when feeling his head one morning after having fallen through the roof and fractured his skull the night before. He was of the opinion that it was a valuable symptom, and particularly where any doubt existed as to the fracture or the necessity for operation.

He reported having observed hydrocephalus in the acquired form many times during the past few years. He did not believe it possible to get this sound where the edges of the bone have become separated, but he had seen a case where it was heard ten feet from the patient.

DR. DEFOREST WILLARD, of Philadelphia, referred to the case of a child less than one year old in which a cerebellar tumor was suspected and hydrocephalus was marked. Owing to the age of the child, it was not supposed that the cracked-pot sound could be obtained. The rigidity of all the muscles of the body was very marked, and there was total lack of cerebral development.

DR. CARSON, in closing, agreed with the speakers that it was only in cases of acquired hydrocephalus and extensive fracture of the skull that this sound could be elicited.

(To be continued.)

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EPIDEMIC CEREBRO-SPINAL MENINGITIS.

A REPORT OF THE MASSACHUSETTS STATE BOARD OF HEALTH.

THE Massachusetts State Board of Health is to be congratulated on its recent publication concerning "Epidemic Cerebro-Spinal Meningitis and its Relation to Other Forms of Meningitis." The work has been done by Drs. Councilman, Mallory and Wright, who have had the best possible opportunity for studying the disease in its details, and whose names are a guarantee of the thoroughness of their investigation.

It is to be hoped that the precedent hereby established may be followed by other boards of health; for in such work we see the surest evidence of progress toward the dissemination of real knowledge, and a better understanding of the true significance of the epidemic diseases. A mere statistical report often carries little weight even to those primarily interested, whereas a monograph, prepared with all the scientific means now at our disposal, not only concentrates attention, but serves also as a distinct addition to our fund of practical knowledge.

For these reasons we welcome most cordially this contribution. It has in the first place the element of completeness. The disease is adequately discussed in its smallest details, and invaluable comparisons made, and differences emphasized between it and the numerous other forms of meningitis with which we are now familiar. As the writers say (Introductory, p. viii), "The confusion of medical terms by physicians, together with the fact that all returns made to the State authorities are copies of certificates, and not originals, and that these copies are in the majority of instances made by men who have little or no knowledge of the significance of medical terms, give to the information obtained in regard to this disease a great measure of uncertainty. This is peculiarly true of epidemic cerebro-spinal meningitis—a disease which is liable to be confounded with several other forms of brain disease,

in consequence of the similarity in nomenclature of the terms employed to define such diseases."

The work is monographic in the true sense of the word; but in addition to a valuable historical sketch, and a discussion of opinions hitherto expressed, the writers have gone further and added greatly to our knowledge of the subject by a list of 111 cases, clinically and, more important, pathologically observed. Many new facts have been adduced; for example, the division of neuroglia cells under the influence of a toxic agent, and details regarding the habits and properties of the exciting organism of the affection, so that we may justly look upon this monograph as one of the most valuable contributions to scientific medicine which Massachusetts has made.

The volume consists of 178 pages and eight plates. It is not indexed, but has an adequate table of contents. The large subject-matter is excellently divided for ease of reference. Charts are introduced in the text wherever necessary and a table of post-mortem examinations, together with a map showing the distribution of the disease in Boston, as occurring in the late epidemic. Too much praise cannot be given the plates, which conclude the volume. They demonstrate, as nothing else could, excepting the microscope itself, the nature of the histological changes which underlie the clinical symptoms. The reproduction of the original drawings leaves nothing to be desired. We regret that the bibliography does not contain month and page references, but this, perhaps, is a refinement of criticism.

There can be but one opinion in regard to the publication of this monograph, and that is, that it is the best work for the public health that could possibly be done. In the presence of such an epidemic as we have had, and may have again, it is clearly the right of the public to know from the most reliable sources obtainable what the exact nature of the malady is, in order the better to provide against its ravages. No other method than the one chosen could give this knowledge.

GASTRECTOMY.

THE operation of the removal of the entire stomach, and anastomosis between the lower end of the esophagus and the duodenum has been for the first time successfully performed in this country by Dr. Charles Brooks Brigham, of San Francisco, and the account of the case is published in our present issue. As a surgical achievement this operation certainly takes rank as an operation of the first magnitude.

The fact that after the removal of the stomach, in animals of strong vitality the nutrition might be maintained by the compensatory over-activity of the intestines was demonstrated by Czerny in 1876, as noted in our editorial of January 6th last.

In 1895, Schuchardt, of Stettin, removed the entire stomach, except a very small portion at the cardiac end, and the patient lived a life of comfort and activity for two and a half years after the operation.

In September, 1897, Schlatter, of Zurich,¹ removed the entire stomach from a female patient, for cancer, and performed anastomosis between the esophagus and a loop of the upper portion of the jejunum, sewing up the divided distal end of the duodenum. The patient, as is noted by our Berlin correspondent, on page 433, is now well and strong.

The success of Schlatter's case has undoubtedly inspired with emulation surgeons in all parts of the world, and the case of Dr. Brigham is, so far as we can learn, the first successful result reported.

Dr. Brigham's operation differs from that performed by Schlatter in that he was able to unite the lower end of the esophagus directly with the cut end of the duodenum, thus saving time, an element which is of paramount importance in so extensive an operation, and one involving so great danger from surgical shock. The good judgment of Dr. Brigham in recognizing that his patient would not bear the more time-consuming method of anastomosis by suture, and resorting to the Murphy button, was amply vindicated by the result. The disadvantages of the button as compared with suture were recognized by Dr. Brigham, as he states in his paper, but they were outweighed by the paramount necessity of saving time, and were not sufficient to prevent success.

Dr. Brigham's case is of great interest, as showing that in certain cases it is possible to join the duodenum to the intestine without undue tension. In the not infrequent cases in which the duodenum is lower than the normal position this would probably be impossible, and the procedure adopted by Schlatter of uniting the lower end of the esophagus to a loop of jejunum would be the only resort.

It is interesting to note from Dr. Brigham's account that the constitution, mental disposition and previous habits of diet of the patient were most favorable to the success of the operation. Of a quiet disposition and simple tastes, accustomed since the loss of her teeth to a liquid diet, such as she must of a necessity subsist on for a time after the removal of the stomach, she presented an ideal subject for the operation, except for one circumstance, the thickness of her adipose layer. Even this, although it necessitated a longer incision, may not have been entirely a disadvantage, as it must have tended to enable her to withstand low diet better than would have been possible for a thin, cachectic patient.

It is impossible in this brief notice to allude to all the points of interest in matters of surgical technique, such as the fact mentioned that unless the left lobe of the liver were hypertrophied the operator would find plenty of room for manipulation in the subdiaphragmatic space, or to the physiological points with regard to diet, etc., which are illustrated in Dr. Brigham's careful account of his remarkably successful case.

A brief consideration, however, will justify the deduction that cases suited to the operation are rare. It is certainly an uncommon experience for a surgeon to

meet with a case of cancer of the stomach in as good physical condition as was Dr. Brigham's case. The pale, thin, worn, cachectic victims of this disease are seldom in a condition to withstand so formidable an operative procedure. Even in this case the operator was compelled to hasten his operation by employing a method of anastomosis which he would not otherwise have chosen.

Schlatter and Brigham have shown, however, that there exists a certain (probably small) proportion of cases in which resort to this most radical surgical procedure may for a time at least rescue the patient.

The time (two and a half years) which Schuchardt's patient lived after the operation proves that the prolongation of life may be by no means inconsiderable.

THE WAR AND MODERN SURGERY.

WHILE we await with interest, and yet in the light of the recent brilliant victory at Manila, without apprehension, the prospect of a decisive naval battle in the near future, a few reflections naturally suggest themselves regarding the injuries which will be the inevitable result of a conflict between the ponderous fighting machines of modern navies, and the success with which they can be dealt with by modern surgical methods.

The day of smooth-bore guns and wooden ships having passed, we must expect to witness before long the fearful results of the bursting of shells hurled by rifled guns against ships of steel. It seems inevitable that the proportion of severe and fatal injuries will be greater than before, and that minor casualties will be fewer. The crushing and shattering of the head and trunk by flying pieces of shell, or steel torn from the decks or machinery by the missiles striking a modern warship, will result in no trifling injuries, and may prove, not unlikely, that either death or entire escape will be the rule. We remember well how in the battle of the Yalu River, on board the Japanese cruiser *Matsushima*, thirty persons were killed and seventy injured by the bursting of a single ten-inch shell, which hit and exploded some ammunition, and how ten men were killed and injured by the flying fragments of the funnel of the *Fuso*, which was perforated by a shell.

The most fearful possibility, however, as we have reason to remember from the fate of the *Maine*, is the sinking of a ship by a mine or torpedo. More men were lost to the American navy by the sinking of the *Maine* than were killed outright in the Japanese navy during the two principal engagements of the Chino-Japanese War, the battle of the Yalu and the attack on the Pescadores Islands. The other naval battles of the war resulted in no fatalities on the Japanese side.

As against the terrible possibilities for injury in modern naval warfare, we may set the increased facility for dealing with wounds afforded by modern

¹ Medical Record, December, 1897.

surgical science. Injuries to the head and the abdomen which a few years ago would have proved inevitably fatal, may now in many instances be successfully dealt with. Hospital gangrene has become a thing of the past, and the majority of septic complications of wounds and compound fractures may, we hope, be avoided by the skill of our naval surgeons, aided by their knowledge of modern methods and their thorough equipment.

The facilities afforded by the hospital ship *Solace*, which has been equipped for our navy, ought to prove effective in saving many limbs and lives in case of a severe engagement. The accommodations afforded will make a favorable contrast to the crowded and insufficient quarters in the "sick bay" in a man-of-war.

MEDICAL NOTES.

PLAGUE REPORTED IN CALCUTTA.—The plague is reported to have appeared in Calcutta. The persistence of the disease in India is exciting apprehension lest it reach Egypt by way of Mecca.

THE PROTECTION OF INFANT-LIFE.—The Society for the Protection of Infant-Life in Paris recently held its annual meeting. In 1897, 3,947 children were succored and protected, representing an outlay of \$6,580.

DR. FINNEY APPOINTED SURGEON TO THE MARYLAND NATIONAL GUARD.—Dr. J. T. M. Finney, associate professor of surgery in the Johns Hopkins Hospital, has been commissioned chief surgeon of the first brigade, Maryland National Guard, with the rank of colonel. He succeeds Dr. Robert W. Johnson.

EPILEPTIC COLONY FOR NEW JERSEY.—A bill is before the New Jersey Legislature for the establishment of an epileptic colony. The commission of inquiry which recommended the bill stated that there are at the lowest estimate two thousand epileptics in insane asylums and almshouses throughout the State.

ACTING ASSISTANT SURGEONS.—Over eight hundred medical men have offered their services to the army authorities and more than a thousand to the naval medical department. These are by no means all young men or recent graduates, for many offers have been received from men who saw service in the Civil War.

WAKES AS A SOURCE OF INFECTION.—A chimney-sweep in Govan, Scotland, was charged in court with having permitted the body of his mother to be "waked," she having died of typhoid fever. The sanitary authorities had been officially notified of the woman's death, and two officials had warned the defendant that he would be prosecuted if a wake should be held, since it would be illegal under the new Health Act of Scotland. They revisited the house after midnight, and found eight men, nine women and two children in the room with the body. The wake was continued till

nearly morning. The bailie imposed a fine of one guinea, with alternative of a fortnight's imprisonment.

BOSTON.

SUFFOLK DISTRICT MEDICAL SOCIETY.—At the Annual Meeting of the Suffolk District Medical Society held on April 30th the following officers were elected: President, Francis H. Brown; Vice-President, Herbert L. Burrell; Secretary, John Dane; Treasurer, Augustus S. Knight; Librarian, B. Joy Jeffries.

NEW YORK.

A NEW HOME FOR CONSUMPTIVES.—The new home for consumptives, a branch of the Loomis Sanitarium at Liberty, Sullivan County, was formally opened on April 26th, addresses being made by Bishop Potter, Dr. Stubbert, chief physician of the Liberty Sanitarium, and Drs. Miller and Chappelle. The home occupies two houses in West 49th Street, and is designed particularly for incurable cases, the curable cases being sent to the country institution. The first patients were received eight days before the formal opening, and during these eight days three deaths occurred. One of the houses is to be reserved exclusively for free patients, and the other will be occupied by those able to pay something for private rooms.

THE INTERNATIONAL HEALTH EXPOSITION.—The International Health Exposition, at the Grand Central Palace, was opened on April 25th with an address by Lieut.-Governor Timothy L. Woodruff, the Hon. Andrew H. Green presiding. The exhibition is designed for the demonstration of everything that has to do with preventive medicine, hygiene and public sanitation, and the various departments include domestic sanitation, municipal hygiene, naval and military hospital administration, food products, health resorts and sanitariums, hygienic literature, sanitary organizations, etc. A special exhibit of great interest is made by the trained nurses of various hospitals, who vie with each other in presenting the most admirable rooms and wards fitted up for different medical and surgical purposes; and in connection with the exhibit is a collection of dolls costumed in the dresses worn by the nurses of almost every large hospital in the country. The different State Hospitals for the Insane also make an excellent showing, and in their exhibit, which is illustrated by a large number of photographs, the modern methods of treatment of the insane are pleasantly contrasted with the ancient. Mr. Charles F. Wingate, sanitary engineer, is the supervising director of the exposition, which is to remain open until the end of May.

A SURGEON IN ACTIVE PRACTICE.—Dr. Gormley, a resident surgeon of St. Mary's Hospital, Brooklyn, recently gave a practical demonstration of the utility of an athletic training in college. While going to the relief of a man who was reported to be bleeding to death from the kick of a vicious horse, a wheel of the ambulance in which he was riding was snapped off by a rut. The distance from the scene of the accident was a mile, and there was no street-car accessible; so

the plucky young surgeon, seizing his instruments, started to sprint at a six-minute gait, and had the satisfaction of arriving in time to save the patient's life. In a few minutes more the hemorrhage from the ruptured artery, which was caused by a compound fracture of the femur, would undoubtedly have proved fatal.

DEATH OF CORNELIUS N. HOAGLAND, M.D.—Dr. Cornelius N. Hoagland died at his residence in Brooklyn on April 24th. He was born in Neshanic, Somerset County, N. J., on November 23, 1833. He entered Starling Medical College, O., in 1851, and three years afterwards was graduated from the Medical Department of the Western Reserve University at Cleveland. When the Civil War broke out he was residing at Troy, O., and became first lieutenant of the Lafayette Blues, an organization attached to the Eleventh Ohio Infantry. He remained in the army until the close of the war, and then engaged in mercantile business, in which he acquired a handsome fortune. He removed to Brooklyn in 1868. Dr. Hoagland was widely known as a philanthropist. About ten years ago he founded the Hoagland Laboratory, in connection with the Long Island College Hospital, and his gifts to that institution amounted in all to \$184,000. Among his other benefactions were gifts of \$30,000 to the Brooklyn Free Kindergarten Society and \$14,000 to the Brooklyn Eye and Ear Hospital. He was President of the Board of Directors of the Hoagland Laboratory, Regent of the Long Island College Hospital, a Fellow of the Microscopical Society of London, and a Trustee of the Syracuse University, Antioch College, and a number of other institutions.

Correspondence.

[Special Correspondence.]

THE TWENTY-SEVENTH CONGRESS OF THE GERMAN SOCIETY OF SURGERY AT BERLIN, APRIL 13-16, 1898.

MASKS AND GLOVES IN SURGERY.—LOCAL ANESTHESIA.—RESECTIONS OF THE STOMACH.—INTESTINAL ANASTOMOSIS.—CALOT'S PROCEDURE IN POTT'S DISEASE.—ESTANDER'S OPERATION IN EMPYEMA.—RESECTION OF THE LIVER.—SERO-THERAPY IN DIPHTHERIA.—INHUMAN BULLETS, ETC.

April 17, 1898.

THE Congress was considered by all a decided success, and members or visitors who were present the first day did not fail to return to the after sessions. Professors of Surgery from all the universities in the German-speaking portion of Central Europe were the principal participants; and though some of them are no longer young, they showed by the attention which they gave to the rising generation that they were not too old to learn nor so imbued with ideas of their own infallibility that they were not willing to profit by the experiences and the hints of their younger brethren. Prominent at every session were such men as Esmarch, whom the daily papers pointed to with pride as being related to the reigning house in Prussia; Lieutenant-General von Coler, Chief Brigade-Physician of the German Army; Mikulicz, the introducer of gloves in operations; Professor Hahn, of Berlin, who was elected President of the Society for the coming year; Gussenbauer, Braman (of Halle); Helferich and many others; not to mention the President himself, Trendelenburg, who conducted the meet-

ing, and in a masterly manner made himself a prime factor in the success of the Congress.

There was a distinct new feature introduced this year. They had always been bothered by the daily papers printing news of the Congress and quoting addresses, reported by men who were unable to understand what they were writing about; such reports were often so fantastic as to leave the original authors open to much unmerited ridicule. To remedy this, since it was impossible to get rid of the reporters, seven of the younger members generously undertook to furnish the papers with accounts of each day's session. The account usually gave very little more than the mere title of the address; but it satisfied the public as to what the doctors were doing, and when something interesting to the general public was discussed details were given more completely.

The scientific part of the proceedings was opened by Professor Mikulicz (Breslau), who had something new as an aid to final asepsis. It was a mask made of gauze to be worn over the mouth and nose during operations, held in place by wires extending over the ears. He was induced to use it after a series of experiments made, standing before agar plates, while talking, coughing and sneezing. He said, that, like the gloves, the surgeon would soon consider such an arrangement indispensable. The discussion of this first morning was devoted to asepsis, and was principally taken up with gloves. All sorts and varieties were exhibited and advocated by different men, and objections were found to all. Some were too thick and interfered with the surgeon's touch, as Wölfler's first rubber gloves; others were too thin and might be torn; a third pattern was permeable, allowing bacteria to permeate it; and a fourth, exhibited by Dr. Perthes (Leipzig) seemed ideal, but was too costly. These last were made of silk and rubber. Mikulicz said that he was now using cloth gloves rendered impermeable, and Wölfler (Prague), who introduced rubber gloves, advocated buckskin gloves soaked in zylol, with the figures cut off and replaced by thin rubber finger slips. The majority of members seemed to think that gloves were now an essential and all acknowledged their usefulness under given circumstances.

In the discussion on local anesthesia Schleich's solutions were recognized as the most serviceable so far introduced to the profession, but there was general acknowledgment that there was room for advance.

On the subject of resection of the stomach and intestines much that was interesting was advanced. Professor Krönlein (Zurich) detailed again the now famous case of total extirpation of the stomach done by his assistant Dr. Schlatter. He announced that the patient was perfectly healthy, capable of taking nourishment like any ordinary individual, with no apparent impairment of digestion.

Following this, Dr. Schuchardt (Stettin) described a case of almost total extirpation in which they had been surprised to find no disturbance of digestion. After two years the patient died of pleurisy and the post-mortem revealed complete regeneration of the stomach. The speaker exhibited the specimen of the regenerated stomach, which would have been difficult to distinguish from a normal organ.

Dr. Loebker gave the details of a case where the operator thought he had done a total extirpation, but the patient dying after three days, it was discovered that the greater part of the stomach still remained. The operator had removed the lower half of an hour-glass contracted stomach; but Professor Krönlein insisted that no such accident had happened in the Zurich case.

Dr. Doyen (Paris) exhibited something new in the technique of stomach and intestinal operations. Before cutting into either organ he crushes its wall by means of a large clamp, such as gynecologists use on the broad ligament. He claimed that the operator had no difficulty with hemorrhage, nor were the intestinal contents so liable to contaminate the wound.

Discussing the best means of intestinal anastomosis, the Murphy button, the Frank coupler, and Wölfler's modification of the latter were mentioned. The Frank coupler

was yet too little known to occupy a very prominent place; but the statistics from Czerny's clinic as well as others showed the firm foothold the Murphy button possessed.

For the treatment of Pott's disease Calot's was recognized as the procedure *par excellence*. Professor Hoffa (Würzburg) gave the following contraindications: (1) very longstanding deformity, (2) the involvement of many vertebrae in the kyphosis, (3) purulent collections at the seat of the disease. He said that on making extension (without anesthetization) if at least a part of the prominence did not disappear, it was useless to attempt the procedure.

In old empyema cases every one advocated the resection of all that part of the chest wall enclosing it; smaller resections were worse than useless. Professor Jordan's (Heidelberg) statistics of 23 cases gave nine complete recoveries, six practically complete recoveries, with only a very small fistula remaining, and four deaths; the other cases being still under treatment. A boy, eleven years old, on whom the operation had been done five years before, and five ribs resected, showed complete regeneration of the removed ribs. The general discussion brought out cases where various numbers of ribs, and at all lengths, had been successfully resected. The specimens of one case which died twenty-two hours later were presented where the operator, Dr. Gerulanos (Greifswald), had for sarcoma in a child extirpated the entire right chest wall.

On the surgery of the liver and bile passages, the most interesting case was that of Dr. Holländer (Berlin) in which a short time ago he resected the gall-bladder and a large portion of the liver for malignant disease. So far the patient has done very well. Hemorrhage from the liver was controlled by hot air. He demonstrated a very simple apparatus designed for this purpose.

The employment of serum-therapy in diphtheria had no opposers. Professor Krönlein (Zurich) presented his own statistics and those of the Canton Zurich and no one doubted the story they told. Since serum came in in 1894 the mortality of diphtheria in the clinic has fallen from 39 per cent. to 12 per cent., and in the Canton Zurich from 17 per cent. to less than 8 per cent.

Professor Bruns (Tübingen) furnished material for the daily papers in an address on "Inhuman Bullets." The soldiers of the English colonial troops, during the late Indian war, filed away the ends of their bullets, with the effect that when they struck bone they splintered it in all directions, and soft tissues they tore holes in as if small cannon-balls had passed through. He demonstrated this effect on cadavers, specimens of which he exhibited. He appealed to the German delegation in the coming St. Petersburg convention to see that in case of war such bullets would be forbidden.

Some wonderful results were detailed by Dr. Doyen (Paris) in hemi-craniectomy on idiots and microcephalics; as well as in the location and extirpation of tumors of the brain.

In the discussion of radical operations for cancer of the face, Dr. Grosse (Halle) exhibited a patient perfectly cured, operated on five years ago. They had removed the superior maxillary and malar bones, the eye and ear, had chiselled away parts of the orbit, and of the petrous portion of the temporal bone as deep as the tympanum. The result, even cosmetically, was excellent.

Dr. Küttner (Tübingen) detailed two cases of syphilitic struma operated on, because diagnosed malignant struma. Microscopical examination of the tumors and after symptoms made the diagnosis clear.

Two specimens of Röntgen-ray photographs were shown by Dr. Sprengel (Braunschweig) where coxitis had been diagnosed from the symptoms and skiagraphs, but which post-mortem proved to be separation of the epiphyseal head. Dr. Hofmeister (Tübingen) exhibited a number of skiagraphs of a single normal pelvis where a dozen abnormal conditions had been prettily produced by moving the patient, the light, or both.

Professor Dührssen (Berlin) advocated the employment of steam to control hemorrhage. He had found it particularly efficient in controlling excessive menstruation.

[Special Correspondence.]

THE GERMAN CONGRESS FOR INTERNAL MEDICINE.

WIESBADEN, April 18, 1898.

THE CLINICAL TEACHING OF MEDICINE. — THERAPY OF CHLOROSIS. — BLOOD PLAQUES. — A NEW FORM OF NUCLEATED RED BLOOD CELL. — TREATMENT OF DIABETES. — PSEUDO-URIC (URIC) ACID. — AUTO-INTOXICATION. — THE NEURON THEORY. — THE ETIOLOGY OF TABES. — NOVELTIES IN BACTERIOLOGY.

ON the first day of the Congress Professor Ziemssen, of Munich, and Professor von Jaksch, of Prague, read, by invitation, papers on "The Clinical Teaching of Medicine." The discussion was shared in by Professors Schulze of Bonn, Quincke of Kiel, Hoffman of Leipzig, Jurgensen of Tübingen, Moritz of Munich, and Schmidt of Frankfurt. Surely one would think some light must shine through the interesting but cloudy question from such a galaxy as this; but while all are agreed that reforms are needed, there is very little agreement as to more than the general direction the reforms should take.

Professor von Ziemssen asks that another semester be added to the German medical course, making it full five years; it is now nine semesters, four and a half years, though, of course, half a year of compulsory military service must find a place in it. Professor von Jaksch would add two semesters, though the course in Austria is already ten semesters long. The extra two semesters he would gain for medicine by omitting the last year of the gymnasium training, and making it a proseminar at the university, a preliminary year spent at the natural sciences in direct preparation for medicine. This question of invading the sacred institution of the gymnasium with its nine years' course is looked on as a cardinal heresy in Germany and met with no favor.

It was agreed on all sides that more practical work must be done, that more laboratory work must be required, that dispensaries must be used more for teaching purposes, and that practical, physical, therapeutic methods — hydrotherapy, movement therapy, massage, inhalation therapy, electro therapy — must receive more attention than they have had. Most of the *dissentants* leaned to Ziemssen's opinion that a year of hospital experience (or at least half a year) in which the young doctor should have the duties and responsibilities of practice should be required before permission to practise independently is given. These additional requirements will decrease the number of medical students, but that is not an uncompensated evil, as a better class of men will enter the profession, the cry of overcrowding will cease, and more serious consideration will be taken before entering on a profession that requires so much time for preparation.

In the discussion of the therapy of chlorosis the question of venesection, which has been lately proposed for it, did not meet with the disapproval that might be expected in a disease whose main symptom is what the Germans call *Blut armuth* (blood poverty). Sweating and hot baths were dwelt on as two of the most successful therapeutic methods in obstinate cases.

Blood plaques Dr. Determan demonstrated to be the result of the disintegration of red blood-cells, and so their presence in large numbers, while not pathognomonic of any disease, showed a lack of vital resistance in the red blood-corpuscles, which indicated a serious blood condition. They were to be found in pathological blood conditions, where other morphological changes did not take place so that they formed an important clinical symptom.

Dr. Engel of Berlin (Hertwig and Virchow's laboratories) described a new form of nucleated red blood-cell occurring in embryonic blood, reacting differently to the others to the triacid stain. It occurred also in pernicious anemia and substantiated Ehrlich's theory, that progressive pernicious anemia was a true reversion to embryonic types, and so malignant in character. Where the new red cell (a metocyte) occurs, the prognosis is the worst possible.

As to the treatment of diabetes two things look promi-

ing and progressive. Minkowski reported that, in dogs rendered artificially diabetic by the removal of the pancreas, the feeding with pancreas extract gave good results. Von Leube of Würzburg has been trying this on diabetic patients, with encouraging results. Von Jaksch of Prague has been experimenting with various of the carbohydrate series in order to discover whether there may not be one which the system will metabolize, though it has lost its faculty for the consumption of grape sugar. He has found that patients (diabetics) assimilate arabinose, a methyl-pentose, very well, and is going to continue his experiments.

The question of the possibility of the introduction of sugar into the circulation directly and its fate brought out in the discussion the fact that a number of prominent clinics are doing work in subcutaneous alimentation: Von Leube thinks that olive oil may now be considered as beyond the experimental stage, as a subcutaneous nutritive material. In von Leyden's clinic there are other things that have been used and with success; but subsequent infiltration and discomfort for the patient have deterred them from further experiment.

Professor Minkowski of Strassburg described a new nitrogenous compound which he has found in the urine of dogs fed on thymus. It is a pseudo uric acid, so closely does it resemble that compound, and Minkowski considers it to be a stage of the ordinary production of uric acid in the system, that for some special reason is excreted before metabolic processes are completed, when thymus extract is taken. Its study then may elucidate the production of uric acid from nuclein in human beings. He gives it the name "urotic acid."

As to auto-intoxication, another of the subjects for discussion selected beforehand, Professor Müller's (Marburg) and Brieger's (Berlin) papers brought out the difference of opinion that exists between the German and the French schools on the question. The invasion of bacteria from the intestinal canal, as Bouchard and Charrin have taught it, as the etiology of pneumonia, meningitis, and even of late of diphtheria, the Germans do not accept. For them the healthy intestinal mucous membrane is impervious to bacteria. The question of auto-intoxication they consider very important, but it is a chemical not a bacterial question. Ptomaines and leucomaines are responsible for the systemic symptoms not the bacteria.

As to the value of the urotoxic coefficient of which so much has been written as the index of blood toxicity, the method with animal injections was considered by all the dissentants as absolutely untrustworthy. Only the direct chemical demonstration of the toxins in the urine, as Brieger and Ewald do, was thought of scientific value.

Professor Gad, of Prague, spoke of the latest developments of the neuron theory. With Professor Kölliker's teaching as to the comparative unimportance of the protoplasmic processes of the nerve cells for conductive purposes, he seems to have very little sympathy. He referred to some recent work of Professor Porter of Boston on the phrenic neuron. Professor Porter found that if the cord be semi-transversely divided above the level of the spinal centre for the phrenic nerve, the corresponding half of the diaphragm ceases to move; if now the phrenic nerve on the other side be divided, the diaphragm on that side stops, but the other half resumes its movements as before the cord section. Professor Porter's hypothesis for the explanation of the phenomenon, which includes conduction through protoplasmic processes, Professor Gad considers a very interesting and also very probable one. Nervous impulses are shunted, as it were, when the resistance to the conduction of nerve energy is increased by the section, through a protoplasmic process connecting the two cells, but which before did not conduct impulses owing to its inherent resistance. Professor Gad has repeated Professor Porter's experiments, and by longitudinal incision so narrowed the space across which the processes from one side of the cord to the other must pass that he now knows it is not more than four millimetres (one-tenth of an inch) above the origin of the phrenic roots. The new ideas contained in this paper were enthusiastically greeted.

Professor Edinger, of Frankfort, demonstrated the spinal cords of some rats, in which, by overwork when the animals were in a run-down condition, he had been able to artificially produce *tabes-like* degenerations in the posterior columns of the cord. He considers that this makes clear the etiology of tabes. It is a degeneration from overwork when nerve cells are in a lowered stage of vital resistance, either from anemia, the presence of toxins in the blood, or a naturally lowered vitality, as from heredity. He thinks too that this points out the principal indications for treatment and prophylaxis. A carefully-regulated life is necessary for people disposed by syphilis to tabes, and no abuse of the movement-therapy now so popular, if harm is not to be done and a rapid advance of the disease brought about.

Two things were of interest in bacteriology. Kühnau, of Breslau, pointed out the pathogenicity of certain proteus forms, especially in affections of the mucous membranes. He considers them responsible for the gangrenous forms of pharyngitis and tonsillitis that occur, and for certain severe dysenteric and cystitic conditions.

Petruschky, of Dantzig, demonstrated a streptothrix which he has found now for the second time to be pathogenic for human beings and his observations were confirmed by von Ziemssen, who has found the same parasite in the sputum of lung cases running an unusual clinical course, and he too considers it pathogenic in these cases.

LOST AND FOUND: A SPONGE IN A QUEER PLACE.

BOSTON, May 2, 1898.

MR. EDITOR:—On April 25th, with my assistants, Drs. Pease and Manahan, I removed a cancerous fibroid uterus and two dermoid ovaries. The operation was tedious, difficult and severe: in the course of it, we used one hundred sponges, each sponge being about four inches by three, and made of ordinary gauze. On making a sponge count only ninety-nine sponges could be found. We searched the room and the patient's abdomen over and over, and at length gave it up. Immediately after this operation we drove to the Union Station in a hack; and while in the carriage Dr. Manahan happened to turn his foot up, and there, stuck to the bottom of his instep, just in front of his boot heel, was the bloody sponge.

I had thrown it on the floor, in order that it might not get mixed up with the aseptic sponges after wiping the cervical canal with it. This shows that it will be important in future to look at the soles of our boots when unable to find all the sponges we have used, and also that we should be careful to put all sponges into a basin or pail and not throw them upon the floor.

Very truly yours, JOHN HOMANS, M.D.

METEOROLOGICAL RECORD

For the week ending April 23d, in Boston, according to observations furnished by Sergeant J. W. Smith, of the United States Signal Corps:—

Date.	Barometer	Thermometer		Relative humidity		Direction of wind.		Velocity of wind.		Weth'r.		Rainfall in inches.
	Daily mean.	Daily mean.	Maximum.	Minimum.	8.00 A. M.	8.00 P. M.	Daily mean.	8.00 A. M.	8.00 P. M.	8.00 A. M.	8.00 P. M.	
S...17	29.79	60	72	48	46	36	41	W.	W.	9	8	C.
M...18	30.00	53	62	44	62	49	50	N.W.	N.	14	20	O.
T...19	30.20	44	52	37	38	100	69	S.W.	S.E.	5	11	O.
W...20	29.77	43	48	38	96	91	84	N.E.	S.E.	8	6	O.
T...21	29.77	48	56	40	70	61	66	W.	W.	11	12	C.
F...22	30.04	52	62	43	53	44	48	N.W.	S.W.	12	6	F.
S...23	29.94	51	57	45	90	96	93	S.W.	N.E.	5	10	R.
												.79

* O., cloudy; C., clear; F., fair; G., fog; H., hazy; S., smoky; R., rain; T., threatening; N., snow. † Indicates trace of rainfall. — Mean for week.

RECORD OF MORTALITY

FOR THE WEEK ENDING SATURDAY, APRIL 23, 1898.

Cities.	Estimated population.	Reported deaths in each.	Deaths under five years.	Percentage of deaths from				
				Infectious diseases.	Acute lung diseases.	Diarrheal diseases.	Diphtheria and croup.	Measles.
New York	3,438,899	1171	439	10.08	17.76	1.12	3.60	1.92
Chicago	1,619,226	—	—	—	—	—	—	—
Philadelphia	1,214,256	445	133	9.20	13.11	1.15	3.22	1.61
Brooklyn	1,160,000	—	—	—	—	—	—	—
St. Louis	570,000	189	35	5.27	26.50	.53	2.12	1.06
Baltimore	550,000	229	101	7.48	17.00	.44	2.20	.88
Boston	517,732	219	66	8.74	16.56	—	3.22	.92
Cincinnati	405,000	128	—	5.53	22.33	—	.79	—
Cleveland	380,000	—	—	—	—	—	—	—
Pittsburg	285,000	91	34	14.17	18.53	4.36	—	3.27
Washington	277,000	105	18	11.52	8.64	2.18	—	—
Milwaukee	275,000	—	—	—	—	—	—	—
Worcester	105,050	49	19	15.78	31.56	—	—	—
Nashville	87,764	21	0	—	19.04	—	—	—
Fall River	95,919	33	15	12.12	15.15	12.12	—	—
Lowell	87,198	35	6	2.88	25.74	—	2.86	—
Cambridge	86,812	23	10	17.40	8.70	—	—	—
Lynn	65,220	22	6	—	8.30	—	—	—
Charleston	65,165	—	—	—	—	—	—	—
New Bedford	62,416	23	9	17.40	8.70	—	—	—
Lawrence	55,510	13	6	—	15.38	—	—	—
Springfield	54,790	19	5	—	15.78	—	—	—
Holyoke	42,384	16	3	12.50	—	12.50	—	—
Portland	40,000	—	—	—	—	—	—	—
Salem	36,062	11	3	—	9.09	—	—	—
Brookton	35,653	12	1	—	8.33	—	—	—
Malden	32,894	11	1	—	9.09	—	—	—
Chelsea	32,716	16	6	—	12.50	—	—	—
Haverhill	31,406	12	2	—	16.66	—	—	—
Gloucester	29,775	—	—	—	—	—	—	—
Newton	28,990	8	4	—	50.00	—	—	—
Fitchburg	28,892	8	2	—	25.00	—	—	—
Taunton	27,812	8	1	—	61.50	—	—	—
Quincy	22,562	—	—	—	—	—	—	—
Pittsfield	21,891	2	0	—	50.00	—	—	—
Waltham	21,812	7	0	—	14.28	—	—	—
Everett	21,575	—	—	—	—	—	—	—
Northampton	17,448	—	—	—	—	—	—	—
Newburyport	14,794	4	0	—	25.00	—	—	—
Amesbury	10,920	—	—	—	—	—	—	—

Deaths reported 3,024; under five years of age 1,018; principal infectious diseases (small-pox, measles, diphtheria and croup, cerebro-spinal meningitis, diarrheal diseases, whooping-cough, erysipelas and fevers) 260, acute lung diseases 427, consumption 321, diphtheria and croup 80, measles 40, diarrheal diseases 35, whooping-cough 32, typhoid fever 27, scarlet fever 21, cerebro-spinal meningitis 20, erysipelas 5.

From whooping-cough New York 16, Philadelphia 5, Cincinnati and Cambridge 3 each, Boston and Worcester 2 each, Baltimore 1. From typhoid fever Philadelphia and Pittsburg 6 each, Baltimore 5, Washington 4, Boston 3, New York 2. From scarlet fever New York 16, Philadelphia 2, St. Louis, Baltimore and Cambridge 1 each. From erysipelas New York 3, Philadelphia and Washington 1 each.

In the thirty-three greater towns of England and Wales, with an estimated population of 11,218,378, for the week ending April 16th, the death-rate was 19.5. Deaths reported 4,201; acute diseases of the respiratory organs (London) 305, measles 219, whooping-cough 114, diphtheria 70, scarlet fever 33, fever 29, diarrhea 22, small-pox (London) 1.

The death-rates ranged from 12.5 in Preston to 27.5 in Liverpool; Birmingham 18.1, Bolton 14.0, Bradford 21.4, Cardiff 16.7, Derby 18.4, Gateshead 25.6, Hull 19.3, Leeds 22.0, Leicester 24.2, London 19.1, Manchester 22.0, Newcastle-on-Tyne 26.0, Nottingham 16.1, Oldham 24.6, Sheffield 16.5, Sunderland 18.5.

OFFICIAL LIST OF CHANGES IN THE STATIONS AND DUTIES OF OFFICERS SERVING IN THE MEDICAL DEPARTMENT, U. S. ARMY, FROM APRIL 23, 1898, TO APRIL 29, 1898.

CAPTAIN LEONARD WOOD, assistant surgeon, is relieved from duty in this city, Washington, D. C., and will proceed to the following named places, in the order designated, for duty in connection with the recruitment of a regiment of mounted riflemen, to be organized under Section 7 of the Act of Congress approved April 22, 1898: Guthrie, O. T., Santa Fé, N. M., Phoenix, A. T., Carson City, Nev., Salt Lake City, Utah, Cheyenne, Wyo., Boise City, Idaho.

MAJOR WILLIAM C. SHANNON, surgeon, having been found by an Army Retiring Board incapacitated for active service on account of disability incident to the service, his retirement from

active service, this date, by the President, is announced, April 23, 1898.

FIRST-LIEUT. BENJAMIN BROOKE, assistant surgeon, is retired from active service, as a Captain, upon the finding of an examining board that he is disqualified for the duties of assistant surgeon with the rank of Captain, by reason of disability incident to the service, to date from April 20, 1898.

OFFICIAL LIST OF CHANGES OF STATIONS AND DUTIES OF COMMISSIONED OFFICERS OF THE UNITED STATES MARINE-HOSPITAL SERVICE FOR THE FOURTEEN DAYS ENDING APRIL 28, 1898.

IRWIN, FAIRFAX, surgeon. To proceed to Reedy Island Quarantine as inspector. April 26, 1898.

CARTER, H. R., surgeon. To assume command of Camp Fontainebleau, Miss., in addition to other duties. April 25, 1898.

BROOKS, S. D., passed assistant surgeon. To proceed to Port Townsend, Wash., and inspect unserviceable property. April 18, 1898. To represent Service at meeting of Washington State Medical Society at Seattle, Wash., May 10-12, 1898. April 18, 1898.

MAGEUDER, G. M., passed assistant surgeon. To proceed to Little Rock, Ark., for special temporary duty. April 23, 1898.

GREDINGS, H. D., passed assistant surgeon. To proceed to Egmont Key, Fla., for special temporary duty and then to proceed to Tampa, Fla., and await orders. April 23, 1898.

WERTENBAKER, C. P., passed assistant surgeon. To proceed to Columbia, S. C., for special temporary duty. April 23, 1898. Upon completion of duty at Columbia, S. C., to proceed to Sumter, S. C., for special temporary duty. April 28, 1898.

TABB, S. R., assistant surgeon. Granted extension of leave of absence for one day. April 15, 1898.

HASTINGS, HILL, assistant surgeon. To report at Bureau for special temporary duty. April 20, 1898.

THE AMERICAN MEDICAL ASSOCIATION.

DENVER MEETING, JUNE 7-10, 1898.

Railroad Rates: The Western Passenger Association has granted a rate to Denver and return of one-half fare, plus \$2.00, thirty-day limit, for business from Chicago, St. Louis and intermediate points. Tickets on sale June 2d, 4th and 6th, east of the Missouri River; 5th and 6th west of the Missouri River. A round trip rate of \$20.00, thirty-day limit, from Ogden and Salt Lake, is also announced. Application for similar rates has been made to all other Passenger Associations and to railroads not controlled by them. Announcement of other rates and rules governing the sale of tickets will be made in *The Journal of the Association* as soon as decisions are received.

CORRECTION.

In the report of the proceedings of the Surgical Section of the Suffolk District Medical Society published in the *JOURNAL* of April 28th, p. 399, by inadvertence it was not stated that the communication on the "Sterilization of Catgut" read by Dr. R. M. Pearce was written and sent by Dr. Charles Harrington, who was unable to be present.

PAUL THORNDIKE, M.D., Secretary, Surgical Section.

BOOKS AND PAMPHLETS RECEIVED.

Faulty Metabolism; Nutrition and Growth. By W. A. Walker, M.D., New York. Reprint. 1898.

Some Remarks and Reports upon Specimens in Abdominal Surgery. By H. O. Walker, M.D., Detroit, Mich. Reprint.

Fifteenth Annual Report of the Superintendent of Health, of the City of Providence, for the Year ending December 31, 1897.

Massage, Movements and Bandaging in the Treatment of Displaced Semilunar Cartilages. By Douglas Graham, M.D., Boston, Mass. Reprint. 1896.

Diabetes Mellitus and its Treatment. By R. T. Williamson, M.D. (Lond.), M.R.C.P., Medical Registrar, Manchester Royal Infirmary; Hon. Medical Officer, Pendleton Dispensary (Salford Royal Hospital); Assistant to the Professor of Medicine, Owens College, Manchester. With 18 illustrations (two colored). Edinburgh and London: Young J. Pentland. 1898.

The Genesis and Dissolution of the Faculty of Speech, a Clinical and Psychological Study of Aphasia. By Joseph Collins, M.D., Professor of Diseases of the Mind and Nervous System in the New York Post-Graduate Medical School; Neurologist to the New York City Hospital, to the St. John's Guild Free Hospital for Children and to the Post-Graduate Hospital, etc. Awarded the Alvarenga Prize of the College of Physicians of Philadelphia, 1897. New York: The MacMillan Co. 1898.

Original Articles.

THE CAMBRIDGE MILK-SUPPLY.¹BY FRANK A. DUNBAR, M.D., CAMBRIDGE, MASS.,
Inspector of Milk.

THE milk-supply of Cambridge comes, like that of all large cities, chiefly from a distance; a small fraction of it is raised either within the city limits, or so near by that it can be delivered to customers within a few hours of the time of milking; another small portion, perhaps one-quarter of the total amount, is collected from the farms within ten or twelve miles of the city, and brought in by teams every day; all the rest of the supply comes over the railroads, and is collected from points distant all the way from ten to over one hundred miles. The milk cars start very early in the morning, collect the milk left on the platforms of the various stations, mostly in eight-quart cans, where it has been teamed from the farms, and get into the city about ten or eleven o'clock, some as late as one o'clock. The milkmen, the majority of whom get their milk from this source, meet these cars upon their arrival, take whatever number of cans they think they will use, leaving in exchange the empty and unwashed cans received full of milk the day before, which are then, still unwashed, sent back to the different farmers from whom they were received.

This milk is then carted home by the milkman, put up for his customer either in small cans or glass jars, and delivered the next morning. It is easy to see that when received by the customers this milk is from thirty-six to forty-eight hours old; it is twenty-four hours since it was picked up by the milk-car at the country station, and at that time the freshest was that milked the previous evening, the rest was the milk of the previous morning. In some near-by farms the same morning's milk is delivered, in which case the oldest is that of the previous evening. The milkman after getting his load of milk home to his stable, proceeds to mix the contents of the different cans together in a large tank called a milk-cooler, or to be more accurate he mixes together all the night's milk and all the morning's milk, so that he can give his most particular customers that which is freshest, and from this tank fills the various cans and jars which are to be delivered to the customers. Owing to the fact that the milk as received from the farms is of different degrees of richness, some being of standard quality, some above and some below the standard, and probably no two cans of the original load being exactly the same, the milkman feels it to be unsafe to sell his load without first mixing it together. This mixing is an extremely good method for the milkman to pursue in order to get a load of milk of standard quality, the sale of which will not render him liable to prosecution; but, of course, if one can has become contaminated with any disease germs it will contaminate the whole load. It is during this mixing process that the milkman practices any adulterations he may think prudent, in order to increase his profits or satisfy his customers. This last may seem a curious reason, but the complaints of the milk-dealers were loud and bitter a few years ago when the practice of adding artificial coloring matter to milk was stopped; and men who I am sure were doing a perfectly straight busi-

ness in other respects came to me and said their business was being ruined, and that it was impossible for them to satisfy their customers with milk of its ordinary white color; people had become accustomed to yellow milk, and thought it was watered when of its natural color. I was obliged to make several complaints against men who were selling milk that was perfectly good in other respects, before this practice was finally given up. The Boston Inspector had the same experience as mine. The other forms of adulteration are skimming, which is generally done by pouring off the top of the can into another vessel, before emptying its contents into the cooler, and watering; a little sugar and salt is then added to cover up the taste of the water, and in warm weather a small amount of some preservative, generally a preparation containing boracic acid, may be added as well, so as to prevent too rapid souring. I have never seen a sample of milk to which chalk or flour had been added, which is, I believe, one of the popular ideas. Watering, skimming, coloring and the addition of some preservative practically make up the list of adulterations; others which might be practised fortunately do not pay, so that is the end of them.

The standard for pure milk in this State, requires any given sample to contain not less than 13 per cent. of milk solids and 3.7 per cent. of fat, except during the months of April, May, June, July and August, when only 12 per cent. of milk solids and 3 per cent. of fat are required. Milk which it can be proved is exactly as given by the cow, if it does not come up to this standard, is considered as adulterated, and the man selling it is just as liable to a fine as if he had been seen to add water; the only difference would be that in the first case the judge would probably impose the minimum and in the other the maximum fine, quite a difference when the fine is from fifty to two hundred dollars for the first offence. Neither does it make any difference if the milkman can prove that the milk is in exactly the same condition and in the same unopened can in which he bought it; if it does not come up to the standard he is liable for it. At first sight such a law appears rather harsh, but when milk goes through so many hands, if intent or guilty knowledge had to be proved no conviction could ever be secured, and if the producer needed only to prove that a poor sample of milk was just as the cow gave it in order to escape conviction, we should soon have the average quality of milk reduced from 13 per cent. to 12 per cent. or 11 per cent.; it is just as easy to breed cows to give a large quantity of milk containing only 11 per cent. of solids as a smaller amount containing 13 per cent.; as a rule, an increase in the average quantity given by a cow means a decrease in the quality.

Under the present system of purchase the farmer is paid so much a can—from 20 cents to 24 cents—for whatever milk he raises, regardless of its quality so long as it comes up to the standard; so of course it is for his advantage to raise as large an amount as possible. Now the cows which give a large amount generally give it with a low percentage of solids, especially of fat, so that the dairies raising milk for the market are found with as large a percentage of such cows as possible; in other words, the farmer raises milk with as low a percentage of solids as he can sell, and then complains that the standard is too high, and that cows will not give milk of standard

¹ Read before the Cambridge Society for Medical Improvement, January, 1898.

quality. In dairies which raise milk for creameries the method is different; there the farmer is paid for the amount of cream his milk will give, not for the quantity of milk; a large quantity is rather a disadvantage as it means just so much more of a load to haul, and here it is no uncommon thing to find milk with four per cent. and five per cent. of fat, often more. It would be, in my opinion, much better if milk for use as such were paid for in the same manner, and customers should then buy milk containing a certain percentage of fat, paying for it accordingly. A law requiring milk to contain the amount of fat claimed, would be no more difficult to enforce than is the present law.

It may be of interest to see just what this present law requires. In the first place any one selling milk must first take out a license, costing fifty cents, which in the case of a milkman selling milk from a team must be renewed annually; the license number, together with the milkman's name and address, must also be plainly marked upon the outside of the wagon.

All milk offered for sale must contain not less than 13 per cent. of milk solids and 3.7 per cent. of fat, except during the summer, as before mentioned. Milk to which any foreign substance has been added, or milk which is the product of sick or diseased cows, is considered as adulterated; but the section forbidding the sale of milk from sick or diseased cows can hardly be enforced under ordinary circumstances.

The inspector or his assistant may get into any wagon or go into any place where milk is kept for sale and take samples for analysis, giving sealed samples in return if asked for them. If any sample so taken is found on analysis not to conform to the standard, a complaint may be entered against the man from whom it was taken. All that it is necessary to prove is that the milk was in the defendant's possession, was for sale, and did not conform to the standard. For a first offence the fine is from fifty to two hundred dollars; for a second offence, from one hundred to three hundred dollars, or imprisonment in the House of Correction for from thirty to sixty days; and for a third offence a fine of fifty dollars and imprisonment for from sixty to ninety days. There are similar penalties for the sale of skimmed milk unless sold from cans plainly marked "skimmed milk," and for refusing to give samples when they are called for, or in any way obstructing the inspector or his assistant.

There is no question but what this law has worked extremely well; at the time it was passed hardly one-third of the whole quantity of milk offered for sale would come up to the standard. About all of the poorer class of milkmen were selling milk to which from one-eighth to one-third of water had been added, together with a coloring matter made from either annatto or caramel, to give it a rich appearance, and a little sugar and salt to conceal the taste of the water; while the better class of milkmen did not hesitate to skim their milk and sell watered milk to such customers as they thought would take it. At present it is a rare thing to find a sample of certainly watered milk; out of 3,252 samples examined last year, only 350 fell below the standard and 254 of these contained over 12 per cent. of solids, equal to the summer standard.

I think this a very good showing as regards freedom from adulteration for a city milk-supply; but how is it as regards absolute purity and freedom from disease germs? That most of the milk offered for sale is far from clean, I am well aware, and any one

can satisfy himself of this by letting a glass of milk stand a few hours and then looking at the sediment. The last few drops turned out will in nearly all cases be of a yellow or brown color from dirt, and this after the milkman has strained it before putting it up for his customers. I have found in the samples examined at one time and another, pieces of manure, animal and human hairs, epidermal scales, flies, bed-bugs, and much dirt which I was unable to identify. The cow is innocent of this form of contamination, and it must be put down to the way in which the milk is handled after it leaves her.

To begin with, very few cows are ever brushed or groomed, and they consequently get themselves covered with all kinds of filth. No self-respecting milkman is ever guilty of washing his hands previous to milking, while many wet their hands and the cows teats with milk to make milking easier; of course this dirty milk drips into the pail, while flakes of dirt get brushed or shaken off the cow into the same receptacle. We all know the favorite location of the ordinary farm well, close to the barn and privy, with many chances of contamination of the water. All the returned milk-cans, coated with sour milk, and the milk-pails, have to be washed in this water, and any water the farmer may feel inclined to add to the milk comes from the same source; also the cans when filled and ready for shipment are generally kept in the well, at any rate in warm weather. During transportation to the city milk-cans are not ordinarily opened; but, on their arrival the milkman knocks the stopper out of each one and puts the can to his mouth to taste, so that he can refuse any the contents of which have already soured. On arrival at the milkman's premises the cans are all emptied into the milk cooler as before stated, and the contents are drawn off into the milkman's own jars or cans, which are distributed according to chance among his customers each day, that is, customer A gets to-day the jar which yesterday went to customer B's house, where perhaps some of the family are sick with diphtheria. The cans are, of course, washed every day but are never sterilized, neither does the milkman nor his assistant wash his hands previous to filling the cans with milk, though they get them pretty thoroughly wet with it before they are through. The whole system of handling milk seems to be most beautifully democratic, and carefully arranged to give every customer a chance to pick up any stray infection which may be floating around.

In contrast to this, the ordinary method of handling milk, I should like to describe a large milk-farm I saw in Newton a few weeks ago. This farm keeps 150 cows on the average, and sells about 1,500 quarts of milk a day. The barn is a large, light structure open from the floor to the roof, the floor divided up into rows of box-stalls each one containing a cow; the ground, covered with six inches of sand, and this covered with planing-mill chips, forms the floor of each stall. The chips are renewed every day, the sand about once in six weeks, and the manure is cleaned up just as soon as passed; the floor between the rows of stalls is of concrete, and the cows are fed upon this floor, which is watered and then swept up every day; the cows are groomed and look as clean as horses, while there is almost no smell of any kind in the barn, it is so airy and the ventilation is so good; each cow is brushed off before milking and each milker is required to wash his hands with soap and water; as soon as a

cow is milked the pail is taken to the milk-room and emptied through muslin into a tank, from which the milk flows over a hollow metal cooler filled with cold brine, and collects at the bottom in another metal tank from which it is at once drawn into sterilized glass jars and is then ready for delivery to customers. During its passage over the cooler the temperature is reduced from about 90° to nearly 86°. This cooler must not be confounded with the ordinary milk-cooler before mentioned, which is quite a different thing. Milk handled in this way is as nearly clean as it can be made; the proprietor showed me the muslin strainer through which the milk of fifty cows had passed; it was scarcely soiled at all, and he remarked with some pride that a few days before a visitor had said that he had often seen as much dirt come from one cow's milk as this strainer had got from one hundred and fifty. There is nothing fancy about this milk farm; the buildings are not expensively built nor is it run in an expensive manner; no glass or silver-lined milk pails are used, nor do the milkers wear white duck uniforms when milking; but they, the cows, and the premises are kept clean, the milk is cooled and bottled as quickly as possible and with the least possible chance of contamination. That it is kept clean is shown by the fact that it keeps sweet; the proprietor told me that he had never had a quart of sour milk returned to him, and that the milk would keep sweet if left in the glass jars for a couple of days at the ordinary room temperature.

When one considers the origin of the city's milk-supply, it seems hardly possible that any legislation can be of much benefit. Any system of inspection of the farms would be very costly and also inefficient; there are about four hundred farms supplying this city, many of them outside of the State, while to be of any benefit whatever a weekly inspection would be necessary, and even then the chance of an inspector's discovering a case of infectious disease among a farmer's help or in his family would be very slight. Under our system it is directly against a farmer's interest to have a case of sickness discovered, for it means that his milk will be refused by the contractors and left on his hands, provided anything is done about it; and of course he will do all in his power to avoid such a calamity.

The system followed in Copenhagen is certainly much better; there a large milk firm, corresponding to our contractors, supplies the city and buys from the farmers, who are required by contract to notify the firm if any case of sickness occurs in their families or among their cattle. If they do this the firm continues to pay for the milk produced, though it is not used; but if they do not and the firm finds it out, the milk is at once shut off and all further payment refused.

The only way I can see to apply a similar method here would be for the city or State to require such a notification in case of sickness on the farm or among the persons subsequently handling the milk, paying any damage which such a notification might cause, and imposing heavy penalties in case it was not done. This would not give entire safety, as some of the cases of infection are caused by persons who do not consider themselves sick enough to require a physician, but it would doubtless reduce the danger.

In order to secure complete safety milk should be Pasteurized just before it is delivered to customers. I have recently tried a few experiments in Pasteurizing milk, with the following results: The largest num-

ber of germs found in un-Pasteurized milk was about 14,000,000 per cubic centimetre, the average number being about 2,000,000. The best results were obtained by heating to 165° to 170° F. for half an hour. After such an exposure about 150 to 250 colonies developed per cubic centimetre. If heated much above this point, the boiled taste became quite marked and the results were not much better, while in milk heated enough above this point to be more nearly sterilized the boiled taste became very noticeable. At not over 170° the taste is very slightly altered; those to whom I gave samples thought not enough so to be objectionable.

The thermal death-point of the typhoid bacillus is given by Sternberg as a ten-minute exposure to a temperature of 165°; while about the same degree of heat is said by the same author to be fatal to the diphtheria bacillus. The tubercle bacillus seems to have a greater resistance to heat; but according to experiments quoted by Sternberg, tuberculous material exposed to the above degree of heat and then injected into guinea-pigs does not cause infection. This would seem to show that milk accidentally contaminated with either of these organisms, if properly Pasteurized, becomes harmless, while I think all agree that it does not have the objectionable qualities of sterilized milk. When done on a large scale Pasteurization does not increase the price more than one or two cents a quart, so that milk which now sells for seven or eight cents a quart would cost if Pasteurized nine or ten, but whether the public is sufficiently alive to the danger of using raw milk to pay the extra price is a question I find it very hard to answer.

A CASE OF MYASTHENIA PSEUDO-PARALYTICA GRAVIS (JOLLY) OR ASTHENIC BULBAR PARALYSIS (STRUMPELL).

BY MAX MAILHOUSE, PH.D., M.D., NEW HAVEN, CONN.,
Assistant in Neurology at the Vanderbilt Clinic, New York.

THE patient, L. D., age two and three-fourths years, male, was brought to my office on July 13, 1897, by his mother, who had been referred by the family physician, Dr. H. Fleischer, for examination and treatment of the case.

The history, as given by the mother, was as follows: The child, previously healthy, seemed to suffer very much from the heat of the first week of July, and to this cause his parents attributed his illness. In answer to a question, it was also stated that he had had a mild diarrheal attack a few days prior to the appearance of the first symptoms. On or about July 6th it was noticed that the child was at times unable to hold his head up properly and that it was thrown or carried backwards. At other times his head was erect as usual. This condition lasted three or four days, and was unaccompanied by noticeable fever or vomiting, nor was there complaint of headache or other pain at this time or later. During this period also he seemed unable to masticate his food properly, stopping after a few attempts, and later beginning again, though still later he refused to try. There was some difficulty in swallowing, and there was a tendency for liquids to regurgitate through the nose, though such did not actually take place. At times his speech was affected so that he could not be readily understood, while at other times his speech

was natural. Since the diarrheal attack he has been somewhat constipated. Micturition has been normal. He has not been confined to his bed at all up to the present time. Noting a day or two ago that his eyes were half-closed and that he seemed unable to smile, his parents grew alarmed and consulted the family physician, who referred the case to me.

Examination.—Family history good; other children, both older and younger, healthy. Patient well nourished, not anemic, and mental condition normal. Runs about the office. Heart, lungs and abdominal viscera normal so far as physical examination could determine. The first feature to strike the eye was the pronounced ptosis on both sides; and though it was incomplete, in a quiescent condition the lids both hung low and did not follow the upward movement of the eyeball on attempting to look at the ceiling. He could, however, raise them somewhat by a strong effort of the will. The other external ocular muscles were normal, and the pupils were equal and reacted to light and accommodation. It was stated, however, that he has been squinting at times. The face was expressionless, and he neither did nor could laugh or smile. The muscles employed in expressing the emotions seemed relaxed and parietic. His mother says he cannot laugh, and what worried her more than all else was the fact that he did not smile. Saliva ran from his mouth at times. Tongue clean, and protruded readily and straight. Lower lip hangs somewhat, and his mouth is at times half-open, but can be closed by an effort of the will only to relax again after a short time. Soft palate normal in position and movements. Voice good. Deep and superficial reflexes normal. No paralysis of the muscles of the extremities, nor any apparent weakness at present of the muscles moving the head upon the spine. After walking a short time he becomes unsteady on his legs, and after sitting awhile his body begins to sway so that he asks to lie down. Pulse 84, and of good quality. Temperature and respiration normal. No atrophies anywhere. Electrical examination unsatisfactory, owing to uneasiness of child.

Rest in bed in the recumbent posture was ordered, diet regulated, and strychnia with an intestinal antiseptic prescribed.

During the following days he improved to such an extent that on July 18th, when I called, I found that, notwithstanding stringent orders to the contrary, he was running about the house, seemingly as well as ever. There was no complaint except that his mother spoke of his very profuse perspiration.

On July 19th I was sent for, owing to a peculiar rolling of the eyes which came upon him; which condition had passed off, however, when I arrived. His mother said he seemed weaker to her, and she thought the heat had caused a relapse.

July 31st. Ptosis is gone, no strabismus, no drooping, can chew, swallow and can smile; pulse 84, temperature and respiration normal; runs about as he did before he was taken sick. His mother considers him well, and I was practically discharged.

On the evening of August 4th I was hurriedly summoned on account of a choking attack which came on during an attempt at swallowing, weakness of the neck muscles so that he could not hold his head up properly, and regurgitation of liquids through the nose. The mother stated that he was up and down from the lounge during the day, for the most part

rather weary, however, and saliva again ran from his mouth. Upon my arrival all of these symptoms had disappeared, and he was lying upon the couch apparently comfortable. He swallowed liquids for me normally, told me his name, and walked for me.

On August 5th during the day he was up and down, drooling at times, and speech at times indistinct. In the afternoon he wanted to get up, and while sitting in his high chair attempting to drink coffee from a cup, a little difficulty in swallowing was noticed, his head drooped and he was dead.

At no time were there any respiratory disturbances. At every one of my visits I found the heart's action good. The difficulty in taking food was at first principally owing to fatigue of the muscles of mastication, later with those of deglutition. No autopsy could be obtained.

This case is very similar in course and symptomatology to that of Wheaton¹ recently reported, they having the following in common: ptosis on both sides, early difficulty in mastication and later difficulty in keeping the mouth closed, fatigue after brief use of the leg muscles, fatigue of the muscles supporting the head, next, disturbance in the muscles of deglutition, and lastly sudden death, though the manner of death varied in the two cases, being in the one a respiratory paralysis and in the other, my own case, a cardiac paralysis. The two cases varied in some of their minor features, the reflexes being normal in my own while exaggerated in Wheaton's case. In my own case, also, the lower facial group was markedly affected. Both cases, however, presented Erb's "Triad" of ptosis, weakness of the neck muscles, and weakness of the masticatory muscles. This symptom group, together with the involvement of the lower facial, the sudden weaknesses in the leg muscles, the remissions and at times apparent recovery, with absence of cerebral symptoms, sensory disturbances and atrophies, would place this case in my opinion with the so-called myasthenia pseudo-paralytica gravis (Jolly). I prefer, with Toby Cohn,² this nomenclature, for the reasons as thus stated by him: "Respecting the nomenclature of the complaint, the designations which pronounce upon the anatomical seat (bulbar paralysis without anatomical findings, polio-encephalo-myelitis, etc.) should all be laid aside, so long as nothing certain is known concerning it. The name myasthenia pseudo-paralytica gravis seems most appropriate because the exhaustibility of the muscles, which simulates paralysis, is the principal symptom (Strümpell) and makes clear the whole clinical picture and course of the disease."

A few points in connection with the case here reported seem to me worthy of note. The duration of the disease was but thirty days, which is contrary to the usual chronic course of the majority of the cases heretofore recorded. There are, however, a few similar acute or subacute cases in the literature. Wheaton's case died fifty-five days after the sudden onset. Fajersztajn's³ case had been ill ten days before his admission to the hospital, but was practically well in six weeks, when he left, though the symptoms, such as ptosis, could be brought out again after moderately prolonged exertion; the further history of this patient was unknown at the time it was reported, one year after leaving hospital. The briefest case of which I can find any record is that of Widai and Marinesco,⁴ a man, age thirty-one, who died fourteen days after a sudden onset, with violent headache followed soon

after with the typical symptoms and course of the disease. In the case of the girl reported by Wilks⁶ the duration was a little more than a month. Wernicke's⁶ case died suddenly in asphyxia on August 2d, two weeks after admission to the hospital, the symptoms having begun in the preceding spring.

The other cases hitherto reported were essentially chronic, one reported by Murri⁷ having a duration of ten years. Of Erb's⁸ three classic cases, one was stated as nearly cured at the end of ten months, the second died suddenly after one and a half years of remissions and exacerbations, while his third case, which entered the hospital with a history of illness of one year's duration, disappeared at the end of fourteen days, no further trace of the patient being obtainable. Silbermark's⁹ case had been going on for six months when first seen, and at that time had the characteristic symptom-complex. Collin's¹⁰ case had been going on three years before it came into his hands. Oppenheim's¹¹ case lasted one and a half years and had been going on nine months before he saw it. Hoppe's¹² case lasted a year, Eisenlohr's¹³ was chronic, Karplus's¹⁴ began at five years of age, and the patient was twenty-four years old when seen by him. Koshenikow's¹⁴ first case died suddenly after six months or more of remissions, while his second case had been going on for six years when he first saw it. One of Brissaud and Lantzenberg's¹⁵ cases had been ailing one and three-fourths years when first seen.

Next, and perhaps of greater interest, is the age of my patient, namely, two and three-fourths years, the nearest approach to it being Karplus's case, in whom the symptoms began at the age of five. This, however, was extremely chronic in its course, its duration being the longest on record. One of Koshenikow's cases was fifty-four years old when coming under observation, and is, together with one of Strümpell¹⁶ (also aged fifty-four) the oldest reported.

The following table gives the number of cases on record in each decade of life, and stating the age at the time of onset of the symptoms:

First decade	2 cases
Second decade	4 cases
Third decade	3 cases
Fourth decade	5 cases
Fifth decade	5 cases
Sixth decade	2 cases

In two cases I was unable to ascertain the age of onset.

The acute and subacute cases have been, with very few exceptions, fatal. Those of Wheaton, Widal and Marinesco, Wilks, Wernicke and my own being striking examples. Of the chronic cases, one each of Erb's and Koshenikow's, and those of Eisenlohr, Hoppe and Oppenheim were fatal. Death in most cases occurred suddenly, and generally from asphyxia. The disease began in many cases with a condition of easily induced fatigue in the legs, arms or both, soon followed by ptosis on one or both sides. Headache was the first symptom in several cases; in three cases ptosis was the earliest symptom. Diplopia was also an early symptom in a large number of cases. The weakness of the muscles supplied by the nerves arising from the nuclei of the lower part of the bulb always came on later. The facial group was affected in one or more portions in three-fourths of the cases. Though fatigue of muscles supporting the head is included in Erb's "Triad," being present in all of his cases, and was the earliest and a noteworthy symptom in my case, I find that it was noted as present in but one-half of the cases.

Concerning the anatomical changes, Marinesco¹⁷ reported at the International Congress at Moscow in 1897 that he had found in a case of asthenic bulbar paralysis, chromatolysis in the nerve cells of the medulla, with intact nucleus and achromatic substance.

In this connection it may be of interest to note the changes found in the cord in cases of Landry's paralysis, the course and symptomatology of which are very similar to those of the acute cases of the disease under consideration, allowance being made for the seat of the disease. Marinesco¹⁷ also reported at the International Medical Congress at Moscow, concerning changes found in nerve cells in two cases of Landry's paralysis; besides softenings, vessel changes and increase of leucocytes, there were decay of the chromatophyl elements in the nerve cells; the nuclei of the cells had lost their contours and lay often on the periphery of the cells; the protoplasm continuations were at times swollen and disintegrated. Baily and Ewing¹⁸ also reported on a case of Landry's paralysis the following findings: "Partial or complete absence of the chromophilic masses . . . in many cells the nuclear membrane was indistinct, irregular or granular, and the nucleolus fragmented or absent. . . . The fragmentation of cell processes was occasionally encountered."

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TWO CASES OF EXTRA-UTERINE PREGNANCY, ONE AT FULL TERM.¹

BY JOHN B. SWIFT, M.D., BOSTON.

THE infrequency of diagnosis before rupture in extra-uterine pregnancy, and the manner in which the diagnosis was made in the following case, seem worthy of record.

I was asked to see the patient on account of an irregular flow, she being supposed to be pregnant, and was given the following history: She was twenty-nine years old, and had been married about five months. There was nothing of importance in the family history except that her mother had been of an extremely nervous disposition. As a child she had been well and strong, in spite of going through the diseases of childhood with unusual severity. The menstrual function had developed rather late, not being fully established until she was seventeen; but afterwards was normal as to regularity, amount of flow and absence of pain. Three years ago there was an interruption of menstruation, owing to a chill after the flow had commenced, which was followed by an attack of what was diagnosed as pelvic peritonitis. Following this she had attacks

¹ Read before the Obstetrical Society of Boston, January 18, 1898.

of "wind colic," and was told that they were caused by adhesions which had formed at the time of the peritonitis. A few months before marriage she was given laughing gas, and the adhesions were said to have been broken, but she continued to have the attacks of colic. The last regular menstruation began on August 31, 1897, and she began to have nausea on September 12th. On September 27th, which was the date for her regular menstruation to appear, there was a slight show of a pinkish tinge and watery consistency, following or accompanying an attack of diarrhea which appeared without known cause. The time for the October period passed without incident; but about the first of November there was a return of the flow, which continued more or less up to the time when I first saw her on November 14th. From the middle of September there had been the usual train of symptoms incident to pregnancy. The nausea had continued, the breasts had enlarged, the areolæ and papillæ about the nipples had increased in size. There had been no pain except the usual attacks of colic.

Examination showed the uterus to be in good position, movable, possibly increased in size, and the os soft but not patulous, with a slight erosion of the cervix. No evidence of any hemorrhage or discharge of any kind. There was no tenderness in the pelvis, and nothing abnormal was felt on either side or posterior to the uterus.

The diagnosis of pregnancy was made; the flow being explained by the erosion of the cervix, or the case being one of those in which a slight show is seen, from time to time, early in pregnancy. Extra-uterine pregnancy was thought of, but was excluded on the ground that nothing abnormal was felt in the pelvis. The reason for not feeling the enlargement of the tube will be explained later. The possibility of abortion was considered, and rest in bed was advised.

During the evening of November 22d she had an attack of colic so severe as to require the use of morphia to give relief. There was no faintness or pallor with this, and the next morning she seemed to be in her usual health.

On November 26th there was a little more blood than usual, and a piece of membrane came away, which was put into alcohol and kept for me to see. It was so hardened by the alcohol, however, that I could make nothing of it, and gave it to Dr. Grant for microscopical examination. He reported that owing to its having been in alcohol it would take some time for the examination, and I told the husband that I feared a miscarriage was taking place. Should anything more be passed to keep it in water instead of alcohol for me.

At midnight of November 27th he appeared at my office with a much larger piece of membrane which had been passed without any pain or flow. This did not seem to me to be the ordinary membrane of a miscarriage, and under the microscope I could find no villi; so the next morning I took it to Dr. Grant for further examination. He pronounced it not the regular membrane of normal pregnancy; and the slides being shown to Dr. Whitney, the opinion that it was from an extra-uterine pregnancy was at once expressed. This was explained to the husband, and the patient was examined under ether. Even then nothing definite was made out; but it was evident that there was something behind and to the left of the uterus. The condition was explained and immediate operation advised,

the advice being that the uterus should first be explored with the curette, and in the absence of a fetus there, a celiotomy should be done. This proposition being somewhat startling to a young couple, the operation was delayed pending the advice of friends, and Dr. M. H. Richardson saw the patient with me and concurred in the advice given.

The operation was done November 30th, seventy-eight days from the first symptom of pregnancy. The uterus was found to be empty, the cavity measuring three inches. On opening the abdomen I at once sought the left tube, as during the ether examination whatever had been felt was on that side. My feelings may be imagined, but not described, when I found a perfectly normal tube and ovary. Passing my finger back of the uterus I came upon what appeared to be a cyst with a pedicle, which, on account of its extreme mobility, eluded my grasp for some time, but finally was brought up into view, and was seen to be the right tube with the fetal sac. Here was the explanation for not feeling the tube during the vaginal examination. The dilatation was in the outer extremity, and being perfectly free eluded the finger in the vagina, as the tenseness of the abdominal walls prevented the outside hand from steadying it. Under ether the left forefinger in the vagina pushed the cyst to the left, which accounts for the diagnosis of the trouble being on that side. The tube containing the sac was removed, two silk ligatures controlling all hemorrhage, and the abdomen was closed. There was no blood nor bloody serum in the abdominal cavity, nor were there any adhesions encountered in the exploration of the pelvis.

So many cases of ectopic gestation after rupture have been reported that we are all familiar with the symptoms in such cases; but what have we to guide us in making a diagnosis before rupture has occurred? All of the text-books which I have consulted agree that a diagnosis before rupture is difficult; but the condition should be suspected when a patient with the symptoms of pregnancy during the early weeks complains of an irregular flow, either with or without shreds of membrane, pains of a crampy character in either groin, and upon vaginal examination some abnormal condition of the pelvic organs is found. In looking over the histories of cases where rupture has occurred the most constant symptom appears to be some menstrual irregularity.

Pain is not a necessary accompaniment of the condition, but depends on the situation of the ovum in the tube, the nearer it is to the uterus the more liability there is to be pain, as this part of the tube does not dilate as readily as the part near the fimbriated extremity.

The shedding of the decidual membrane does not always take place before rupture. When this does occur, it might easily be mistaken for a normal abortion, even should the physician have the good fortune to see it. In the present case the membrane, having been passed without pain or any symptom calling attention to it, might have been lost had not the patient been using the bedpan. In the membrane, however, is our one positive sign, and the microscope scores another triumph. It is due to the positive statement of Dr. Whitney that the operation was done with such a fortunate result.

It is a well-known fact that unusual cases are apt to occur in groups; and it was my fortune to see during the next week in which I operated on the preceding

case another ectopic gestation, but at the other extremity of pregnancy.

On December 11th I was asked to go to Woburn to remove a dead fetus from the uterus of a woman who had gone three weeks beyond the expected time of her confinement, the fetal movements having ceased and the fetal heart-sounds no longer being heard.

The history obtained by careful questioning was that the menstrual function had been established at thirteen years; was fairly regular, with a tendency for the inter-menstrual period to be rather more than twenty-eight days, and there was some dysmenorrhea. She was now thirty-four years old and had been married about a year and a half. Three years ago she had had some pelvic trouble, which appeared without known cause, was called ovaritis, and confined her to her bed for six weeks. Since then there has always been pain in the ovarian regions, and she has had local treatment by various physicians. The last regular menstruation appeared January 21, 1897. The February period was only a slight show, symptoms of pregnancy beginning at about the same time. Conception was supposed to have taken place February 10th or 12th, as her husband, who is a travelling man, was at home at that time. On March 26th she had a severe attack of pain in the abdomen resembling the former attack of ovaritis, and was miserable for seven or eight weeks. There were no symptoms of collapse with this attack, but a great deal of nausea, which was supposed to be due to the pregnancy. She was first positive of feeling motion early in July, and this continued to grow stronger all the time up to November 19th, since which time it had entirely ceased. During the last two months the motion was described as having been very violent, and she thought the child, at times, must have been in convulsions. This motion was perceptible to friends through her clothing, and when lying in bed would move the bed-clothes. The fetal heart-sounds had been heard from time to time by her physician. All through the pregnancy there had been a great deal of stomach disturbance, dyspepsia and constipation.

Confinement was expected about the middle of November, as, dating from the last regular menstruation, January 21, 280 days would have been October 28th. Two hundred and eighty days from the February period would have been November 26th, and 280 days from February 10th, the suspected date of conception, was November 17th.

On November 19th, while sitting on the water-closet, she felt a sudden gush of warm fluid from the vagina. The character of this fluid could not be told, but there was no appearance of blood. Following this throughout the rest of the day there were intermittent pains which came regularly, but were not severe, and her physician was not called. After that all motion of the child ceased, and she noticed that she was growing smaller. The breasts became hard, large and painful, and then gradually subsided.

A week after these symptoms her physician called to see her, and was told of what had happened. On listening for the fetal heart, he could not hear it, and diagnosed the death of the child. After waiting a week, there being no sign of labor, he inserted a catheter into the uterus with the idea of inducing labor, but this not being effective, I was asked to see her and empty the uterus.

The patient was a slight, thin woman, lying in bed, with a normal pulse and temperature. Inspection of

the abdomen showed it to be flat, with a pigmented line from symphysis to umbilicus, the umbilicus not prominent.

Palpation showed a tumor of irregular outline lying across the abdomen, its upper surface about on a level with the umbilicus, and shaped like a child doubled up, with the head in the left iliac fossa. Half-way between the umbilicus and symphysis the hand could press down the abdominal wall so deeply the impression was given that there was nothing but the normal tissues between the hand and spine. In the right groin was a small, rounded, sensitive tumor. No fetal heart was heard.

By the vagina the uterus was felt slightly enlarged, pressed to the right, and was seen to be the small tumor spoken of. The cervix, soft and flabby, admitted the finger, feeling like a recently emptied pregnant uterus. A soft boggy-feeling mass filled the pelvis on the left side, and the child could be felt and outlined between the hands above this. There was a slight discharge like lochia coming from the cervix.

The breasts presented the appearance of those of a nursing woman, and a milky secretion could be expressed from them. There was a supernumerary nipple on the under side of the right breast.

The diagnosis of extra-uterine pregnancy at full term, pseudo-labor with death of the child, was made. Advice was given to treat her as a recently delivered patient and operate for the removal of the child when sufficient time had elapsed to diminish the chances of hemorrhage from the placenta.

I saw her again on December 27th, and found her in very good condition, up and about the house. The abdominal enlargement had diminished considerably. She had had a good deal of milk in the breasts, and there had been a discharge similar to the lochia, which had about stopped. At no time had there been any pain or elevation of temperature. The stomach had lost its irritability, and her food gave her no discomfort.

Vaginal examination showed the uterus to be smaller than at the last visit, still crowded to the right side of the pelvis, the cervix much firmer, and the os would not admit the finger as it had two weeks before.

The child occupied the same position, and the same boggy mass could be felt in the left side of the pelvis, but seemed smaller. The left uterine artery, the size of a quill, could be distinctly felt. Both the patient and her husband were anxious for operation at once, as his business affairs would soon oblige him to leave home.

The operation was done on January 3, 1898, the patient being prepared as for an ordinary celiotomy. On opening the abdomen in the median line, the lower edge of the omentum was found to be adherent, and in trying to push it up, the sac in which the child was lying was broken. This sac was a thin membrane, very friable, and was adherent to the under side of the omentum, the intestine, the posterior wall of the uterus and the bottom of Douglas's pouch. It was impossible to remove it, and most of it was left in the abdomen. The child was easily delivered breech first, and in one place the side of the head was firmly adherent to the sac which was attached to the intestine.

The placenta was on the left side and behind the uterus, pushing the uterus over to the right. It was free in the sac, so that the hand could be passed under it from behind, and draw it up out of the pelvis. It was only attached to the upper edge of the broad liga-

ment, probably the tube, for the tube could not be distinguished except where it left the uterus. The tube seemed to be enlarged at this point, and the broad ligament was very much thickened. A ligature was passed through the broad ligament near the uterus, and the tube tied and cut. In attempting then to dissect off the placenta so many bleeding points were encountered that the broad ligament was tied in several bunches and the whole mass cut away. There was considerable oozing from the sac when the placenta was removed, but I think most of the blood came from the placenta itself.

The cavity was wiped out with gauze and flushed several times with salt solution. The whole abdominal cavity was then filled with salt solution, and closed without drainage. The right ovary and tube appeared to be healthy and were left. The left ovary was not seen. The uterus was somewhat enlarged.

There was considerable shock following the operation, but she soon rallied under the ordinary treatment, and the convalescence has been uneventful, the temperature never having been over 100° F. She is now sitting up and gaining strength every day.

I have been unable to look up the literature thoroughly, but there have been a number of cases reported where extra-uterine pregnancy has gone to full term. The condition, however, must necessarily be rare, as when the rupture of the tube takes place, if the mother does not die, the fetus generally does or is removed by operation. Where the child has lived the subsequent history has been similar to my case, and in a certain number, the condition being recognized before labor came on, or during the false labor, operation has been done in the interest of the child with varying success. If the child is left after its death, which occurs at the time of the false labor, certain changes take place in the fetal tissues which result in the formation of what is known as a lithopedion.

The lithopedion may be carried for an indefinite period in the abdominal cavity, although it is liable to become infected at any time and result in the formation of an abscess. I have seen one case where the lithopedion had been carried for four years without causing trouble. The woman declined operation and I lost track of her.

In a recent number of the *Johns Hopkins Hospital Bulletin* there is an article by Dr. J. G. Clarke, describing a case of lithopedion which was operated on four years after the pseudo-labor. In his article he has gone quite extensively into the literature of the subject, and gives Kuchenmeister's table of cases reported between the years 1582 and 1880. In this table forty-seven cases are reported, the fetus having been carried for periods varying from six months to fifty-seven years. Since Kuchenmeister's table was published Dr. Clarke has found eighteen other cases reported.

When the diagnosis of ectopic gestation has been made early in pregnancy, whether the sac has ruptured or not, there is no question to-day as to the advisability of operating as soon as possible. In cases where rupture has taken place and the child has continued to live, if the diagnosis is made before, or at the time of the pseudo-labor, operation should be done, in the first case, about the time when labor would naturally be expected; in the second case as early in the labor as possible. In such cases the dis-

puted point is what to do with the placenta. If an effort to remove it is made, the chances are that the hemorrhage cannot be controlled. If, on the other hand, the fetal sac is stitched to the abdominal wall and the placenta left to slough away, there is the chance of the woman dying from septicemia. Tait has advised that the cord should be tied as close to the placenta as possible, and the abdomen closed without drainage, a second operation for its removal being done later should there be any indication for it.

When the diagnosis has been made after the death of the child, the patient should be treated as after an ordinary labor, and child and placenta should be removed when the blood-supply to the fetal sac has stopped and the placenta has shrivelled, as it does in cases of death of the fetus intra-uterine.

Just how long a time it is advisable to wait I am not able to say. In my case the operation was done six weeks from the false labor; but in another case, unless there was some indication calling for operation, I should wait at least two months.

TWO SPECIMENS ILLUSTRATIVE OF THE PATHOLOGY OF EXTRA-UTERINE PREGNANCY.¹

BY W. F. WHITNEY, M.D., BOSTON.

I. THE piece of the tube removed by Dr. Swift in his first case measures about six centimetres, the middle part of which is dilated into a somewhat spindle-shaped tumor about one and five-tenths centimetres in diameter. The outer wall of this is smooth and is traversed by small blood-vessels. At one place, in the most prominent part, is an opening from which small white filaments project. A section through the swelling reveals a dark solid mass surrounding a central cavity. This is lined by a thin, smooth, white membrane, measures about seven millimetres in diameter, and contains an embryo about four millimetres in length. The solid part consists of clotted blood mixed with white fibrous filaments. The clot extends about two centimetres farther into the tube; but does not reach the fimbriated opening.

In connection with extra-uterine pregnancy the changes which occur in the uterus are quite constant, and, as Dr. Swift's first case shows, may be of great importance in making the diagnosis.

It is now generally conceded that with development of the ovum in the tube a decidua is formed in the uterus, similar to that of intra-uterine pregnancy, only less well developed. A few cases have been reported when it has not been found, but they have been explained by its early discharge. In the twelve specimens in the Warren Museum it is present in all but one case; in regard to this, however, history is silent. With such a constant proof of pregnancy, the diagnosis should be very easy if it could always be obtained. But unfortunately this does not often come into the physician's hands for examination. In 600 cases collected by Cohnstein there is a reference to the passage of a membrane in only 40, or about seven per cent. In looking over the histories of 60 cases which have been sent to me for examination, I find it mentioned four times, which would be about the same per cent. as in the larger number of Cohnstein.

¹ Remarks before the Obstetrical Society of Boston, January 18, 1898.

As to its cause and significance, it is generally regarded as associated with the death of the embryo, preceding or following the rupture of the tube in the early months or after the death of the fetus, when carried until full term. The time at which it may be expected varies from six weeks to the end of pregnancy. In the four cases I have noted it occurred between the sixth and tenth week. In the 39 cases cited by Cohnstein, during the second month is the earliest time mentioned.

The form in which the decidua may be expelled is either as a complete cast of the interior of the uterus, or in fragments. The latter is by far the most common, and is the only one which I have personally seen. I am unable to state whether a second true decidua is ever formed after one has been expelled. It is an interesting point for future inquiry.

As before mentioned, the structure of the decidua is like that of intra-uterine pregnancy. In it there are to be distinguished three layers. The outer and more compact one is covered by a layer of rather cubical epithelial cells. In this are large thin-walled blood-vessels, from which comes the hemorrhage that is such a constant symptom of an extra-uterine pregnancy, and which is often the first to attract the patient's attention. In this outer layer are also developed the decidual cells to their greatest extent. In the middle layer are a series of irregular cavities formed by the dilatation of the uterine tubules, giving to this part a spongy aspect; and in the deepest layer are the blind ends of the tubes.

The diagnosis of pregnancy rests on the pressure of the membrane with the characteristic decidual cells. The cells are very large, irregular in shape, often distinctly triangular, with a vesicular nucleus, and separated by clearer intervals from each other, in which are found numerous small cells, with a dense nucleus (lymphoid cells and leucocytes).

The differential diagnosis would lie between a menstrual membrane and a sarcoma of the uterus. In the former the cells are all small and the glands, if present, normal or but slightly dilated. In the latter the cells are more regularly round or spindle-shaped, are more abundant, lie very much closer together, and glands are, as a rule, absent.

In the case of intra-uterine pregnancy the presence of chorionic villi or bits of the embryonic membrane would be present.

Of course, even this latter condition does not exclude tubal pregnancy, as cases of a combination of the two forms have been recorded.

From the above it seems that a diagnosis, as in Dr. Swift's case, before any serious symptoms have occurred, can be made but rarely by recognition of the decidua, since the expulsion of a membrane occurs in such a small percentage of the cases, and then is more apt to follow a serious accident than to precede it.

II. The fetus removed by Dr. Swift in his second case is at full term and well formed, with the exception of the left foot, which is dislocated and twisted so that the sole is turned directly upwards. The nose is slightly flattened, and there is a thick layer of vernix caseosa about the head, and to a less degree over the rest of the body. The skin is macerated off in several places. The placenta is somewhat shrunken and quite homogeneous.

In this case the anatomical conditions certainly bear

out the plan of treatment followed by Dr. Swift, namely, to wait until after the death of the child and cessation of the circulation in the placenta before operating. For the absence of any contractile wall to aid in stopping the hemorrhage, when the placenta is loosened, is a factor that is the cause of death in the majority of the cases when the operation has been done during the life of the child or shortly after its death. Bandl cites 37 cases in which the operation was done during the life of the child with a fatal result in 31. On the other hand, the dangers from septic infection after the death of the child are very great, the percentage of which I have not been able to find.

In cases where the fetus is dead and operation has been undertaken, there has been severe bleeding from the placental insertion even after nine weeks.

Leitzman quotes 10 cases that were operated upon from eight days to five weeks after the false labor and of these eight died. In 23 cases operated upon from six weeks to one year, six died.

The rule has been, therefore laid down, that the operation should be done if the patient came under observation at any time between the ninth week and the second year after the death of the fetus. After the latter time there is very little danger to the mother, the fetus generally becoming calcified, and operative interference should not be advised unless other conditions (pregnancy, inflammation, etc.), render it necessary.

Clinical Department.

TWO ADDITIONAL CASES OF DIPHTHERIA OF THE VULVA.

BY W. F. COUES, M.D., BOSTON.

IN the *JOURNAL* for November 4, 1897, I reported a case of diphtheria of the vulva occurring at St. Mary's Infant Asylum. In connection with this case the following cases are of interest:

CASE I. K. McG., two years old, has been in St. Mary's for five months. I saw her first on March 1, 1898. There was a history of loss of appetite, languor and high temperature, 103° to 104° F. for three days. Examination showed a well-developed and nourished child of two years. The lungs and heart were negative; the spleen was not enlarged. The bacteriological and clinical examination of the throat was negative. The child's whole aspect was markedly typhoidal.

The case ran on with the symptoms above described for three days, when, as in the former case reported, my attention was called to the vulva, on account of the child's inability to urinate. Examination showed the vulva greatly swollen, reddened, with two large patches of membrane on either labium majorum. The inguinal glands were not enlarged. A culture was taken from the membrane on the vulva, which proved positive.

The child was sent to the South Department, Boston City Hospital, on March 5th, and was discharged well on March 14th.

CASE II. L. T., twenty-one months. She had been in St. Mary's for two months. On March 2d the child was languid and fretful. There was a slight discharge from the nose. Examination showed a

feeble, ill-nourished child. The throat was reddened, there was some tenderness over the cervical glands. The heart and lungs were negative.

On March 4th the symptoms were aggravated. There was a bloody discharge from the nose and some membrane, the temperature was 102° F., and the pulse 124.

On March 5th a positive culture was received from the throat. Examination of the vulva showed a large patch of white membrane on the right labium majorum, extending up into the vagina. The vulva was not red, or swollen as in Case I. A culture taken from the vulva on March 5th proved positive.

The child was sent to the Boston City Hospital, South Department, on March 5th, and died on March 9th.

Although three cases are hardly enough to draw any definite conclusions from, it seems probable that diphtheria of the vulva is more common than is generally supposed. It may occur primarily, as in Case I, the clinical and bacteriological examination of the throat being negative; or, secondarily with clinical and bacteriological diphtheria of the throat, as in Case II. A careful examination of the vulva in any obscure case should be made, and also in all cases of diphtheria of the throat occurring in young children.

Medical Progress.

RECENT PROGRESS IN SURGERY.

BY H. L. BURRELL, M.D., AND H. W. CUSHING, M.D.

THE EFFECT OF HIGH ALTITUDES IN AGGRAVATING SURGICAL SHOCK.

WETHERILL,¹ in an article on this subject, in making practical application of his ideas, gives the following rules:

(1) In surgical operations, or in surgical shock everywhere, save for the patient every possible drop of blood.

(2) The importance of this precaution increases greatly as higher elevations are reached and the atmospheric pressure is decreased.

(3) Anemic and exsanguinated patients are more subject to surgical shock at high altitudes than at sea-level, and must be more carefully prepared for operation; extra precautions for the prevention of shock must be used at and after the operation.

(4) "Increasing shock" after injuries or operations must be construed as strong presumptive evidence of continuing hemorrhage. It must be made clear that there is no hemorrhage before the ordinary remedies (cardiac stimulants, transfusion, etc.) are employed. The reflex effect of oozing is to continue shock, which must be regarded as conservative in its tendencies while bleeding is still going on.

(5) In treating shock after surgical operations or injuries, the first and most important thing is to arrest completely all further loss of blood.

(6) By some means supply to the depleted vessels an increased volume of fluid at a high temperature for the heart and blood-vessels to contract upon, so that the circulation and blood-pressure may be speedily re-established. In abdominal operations this may be done by leaving a large volume of hot salt solution in

the cavity; or, as in the writer's case, the abdomen may afterwards be opened and the fluid introduced, thus securing at once the application of heat to the great abdominal nerve centres, the mechanical pressure and support of a large volume of fluid as an object upon which the abdominal walls may contract, and thereby restoring to a degree the intra-abdominal pressure, as well as supplying water for absorption into the circulation. The sustained Trendelenburg position is, for obvious reasons, an important accessory.

(7) Diffusible and cardiac stimulants, with heat to the surface, and all other means for the re-establishment of the circulation in its full force and volume may now be freely employed.

(8) Natives, and thoroughly acclimated persons, are not so susceptible to the greater surgical shock in the higher altitudes as others; long residence and the gradual compensatory changes in blood-pressure, in vaso-motor action, and in muscular support of the blood-vessels, having adapted them in great measure to the lighter atmospheric pressure and to the conditions incident to it.

(9) Surgical operations upon unacclimated persons from lower altitudes, and those which involve much loss of blood, are fraught with more risk from shock as the altitude is increased, and extra precautions for its prevention are imperative with such patients. This being borne in mind, and proper precautions observed in the preparation of patients at the time of and after operation, as good results may be expected in high as in lower sections.

(10) In surgical shock at high altitudes use every means for the prevention of shock through the nervous system and the resultant blood stasis, that is, preserve surface heat, save time in operating, avoid exposure and unnecessary handling of the viscera, etc.

Evaporation and heat radiation go on much more rapidly at high altitudes, and must, therefore, be especially guarded against.

THE CAUSATION OF CHLOROFORM SYNCOPE.

Leonard Hill² combats the doctrine of the Hyderabad Commission and of Lawrie, that chloroform kills by paralyzing the respiratory centre, and reaches the following conclusions:

(1) Chloroform produces a primary failure of the circulating mechanism and a secondary failure of the respiratory centre. The respiratory centre fails to act, not only because it is damaged by the drug, but because of the anemia of the spinal bulb produced by the fall of arterial tension. This is proved by the fact that the action of the respiratory centre can be renewed by raising the arterial tension. The depth of anesthesia depends, as does the paralysis of the respiratory centre, on the primary fall of the arterial tension.

(2) Chloroform, more than any other known agent, rapidly abolishes the vascular mechanisms which compensate for the hydrostatic effect of gravity.

(3) Chloroform abolishes these mechanisms by paralyzing the splanchnic vaso-motor tone and by weakening the action of the respiratory pump. When these mechanisms are totally abolished the circulation is impossible, if the subject be in the feet-down position.

(4) Chloroform also produces paralytic dilatation of the heart. It acts directly, like amyl-nitrate, on the musculature of the whole vascular system.

¹ *Annals of Surgery*, April, 1897, p. 430.

² *British Medical Journal*, April 17, 1897; *Clinical Notes and Therapeutic Suggestions*, p. 153.

(5) There are two forms of chloroform syncope: (a) During primary anesthetization. The patient struggles, holds his breath, raises the intra-thoracic pressure, congests his venous system, lowers his arterial tension, and, finally, takes deep inspirations and surcharges his lungs with chloroform. In the first stage the left heart becomes impoverished; in the second stage it is suddenly filled with blood. This is drawn from the lungs and is full of chloroform. The chloroform passes into the coronary arteries and the heart is thrown into paralytic dilatation. Respiration and the pulse either cease simultaneously or the pulse before respiration. (b) During prolonged anesthetization this arises from gradually giving chloroform to too great an extent. The arterial pressure falls lower and lower, and, secondarily, the respiration ceases because of the anemia of the spinal bulb. The heart is not, in this case, paralyzed by chloroform, because the drug is taken in gradually by the shallow respirations and distributed slowly by the feeble circulation.

(6) Artificial respiration and the assumption of the horizontal position, if applied in time, will always resuscitate a patient from the second form of syncope.

(7) Artificial respiration, established with the patient in the horizontal position, is also the treatment indicated in the first form of syncope; the heart should be rhythmically compressed by squeezing the thorax. If this does not quickly renew the pulse, the patient should be put into the vertical feet-down posture. The dilated right heart is thereby completely and easily emptied of blood. Artificial respiration is maintained during this manœuvre and the patient is brought once more into the horizontal posture. By rhythmic compression of the chest an efficient circulation is maintained through the coronary arteries; by first emptying and then filling the heart, a fresh supply of blood is brought into that organ. If this does not prove successful on the first trial it can be repeated.

(8) Inversion—that is, placing the subject in the feet-up position—or compression of the abdomen will increase the paralytic dilatation of the heart. In this kind of syncope both these forms of treatment are worse than useless.

(9) In the condition of shock or emotional fear the compensatory mechanism for the effect of gravity is almost abolished and chloroform may easily be the last straw to completely paralyze the circulation.

(10) Vagus inhibition of the heart is of no importance as an agent in the production of chloroform syncope.

(11) Ether is, in every respect, a far safer anesthetic than chloroform. According to Ringer's experiments on the heart, ether is fifty times less dangerous than chloroform.

(12) With the practical conclusion of the Hyderabad Commission, that the chloroform-inhaler should be removed during the struggling of the patient or when the respiration is of irregular depth, he absolutely agrees, but he considers their interpretation of their own experiments and tracings concerning the origin of chloroform syncope to be mistaken.

Not only the work of all physiologists, but also the tracings of the commission, when rightly interpreted, prove that paralysis of the circulatory mechanism, and not of the respiratory centre, is to be dreaded by the anesthetist.

IMMUNIZATION AND SERUM-THERAPY IN STAPHYLOCOCCUS INFECTION.

Petersen, in an article on this subject,² states that research has been made in a simple manner, principally in three directions:

(1) Immunization with sterilized cultures. It was found that a previous injection of sterilized (by heat) culture either protected an animal from an otherwise fatal dose or at least definitely delayed death.

(2) Immunization with filtered cultures. The results obtained were negative, notwithstanding a diversity of methods employed.

(3) Immunization by weakened or diluted cultures. Serum thus obtained was used to treat animals inoculated with fresh cultures. The results varied widely, and while attended with a fair measure of success, nothing in the way of making a serum suitable for use in man was evolved.

SEPTIC PERITONITIS TREATED BY ANTISTREPTOCOCCUS SERUM.

Grandin⁴ reports a case of general suppurative peritonitis in which, after multiple incisions and drainage by multiple packings of gauze and by a large drainage-tube passed into the vagina, the infection yielded only after injections of the antistreptococcus serum.

In regard to the serum the author says: "I am far from claiming that the woman recovered because of the serum. It is always dangerous to draw positive conclusions from a single case. I find that the antistreptococcus serum has been used in many cases, irrespective of the determination as to whether the case of sepsis was due or not to streptococcus infection. The case I report is fallacious in this respect, for I neglected the very essential point of having the pus examined. Etiologically, I should assume that in my case the bacterium coli played a very prominent part, and we know that the antistreptococcus serum is powerless against the bacterium coli. If, therefore, the serum entered as a factor in the recovery of my patient, it was because the case was one of mixed infection."

The antistreptococcus serum appeared to act as follows: temperature and pulse-rate were uniformly lowered after each administration; elimination of waste infectious products were favored, as was evidenced by the greatly increased action of the kidneys; pus-production was checked; for, whereas before the use of the serum pus-pocket after pus-pocket was forming and infectious elements were being rapidly absorbed into the system, not alone after the injection of the serum did pus-production cease, but the infiltrated flaps cleaned up far more rapidly than the author had ever seen before. He had every reason to anticipate progressive systematic infection and death. He witnessed rapid throwing off of sepsis and recovery.

SUPPURATION FROM STERILE CATGUT.

From experiments performed in 1895, Orlandi⁵ showed that there is produced by the introduction of sterile catgut into animal tissues an acute reaction which is of little moment and is to be explained by the chemical reaction produced by the agents employed

² Annals of Surgery, February, 1898, p. 242; Beiträge zur klin. Chir., Band xix, Heft 2.

⁴ Medical Record, April 3, 1897; American Journal of Medical Sciences, July, 1897, p. 107.

⁵ Cent. f. Chir., February 13, 1897; American Journal of Medical Sciences, November, 1897, p. 608.

in sterilizing and preserving the catgut; also a reaction which has nothing to do with the preparation and sterilization of the catgut, but is produced by bacteria or the results of their action upon the tissues. These bacteria and their products are present in the catgut before its sterilization, and can give rise to so marked chemotactic action that a true abscess-formation, with an outpouring of leucocytes, is produced while the catgut is still sterile and benign.

The author publishes the results of a further series of experiments which he has undertaken with the purpose of determining if the reaction produced by the catgut present in a sterile field will influence the development and biological action of infecting bacteria which by any chance infect the previously sterile field. The observations were confined to experiments with the bacillus coli and the staphylococcus pyogenes aureus, and led the author to the following conclusions:

(1) The area in which the catgut is introduced easily forms abscesses, with a tendency to rapid necrosis.

(2) The micro-organisms are somewhat altered in their development and virulence.

(3) If the animals were inoculated with virulent cultures intravenously, instead of at the area where the catgut was introduced, there was produced an infective reaction at the point where the catgut was introduced.

This, however, did not take place if the inoculation was subcutaneous and in an area which was neither in the same circulatory area nor contiguous to the wound-area.

THE ANTISEPTIC VALUE OF IODOFORM.

The results obtained by Lomry,⁶ in a series of experiments conducted upon animals and by bacteriological cultures in natural fluids, are in marked contrast to those obtained of late by bacteriologists, and tend to prove that the clinical observation of the value of iodoform as an antiseptic is fully justified, while the experimental bacteriological investigations which have been previously made were of little value.

The results which he obtained are the following:

(1) When wounds in dogs or rabbits which have been previously infected with the staphylococcus or streptococcus pyogenes are treated, the one with iodoform and the other without, it will be seen that the iodoform exerts a beneficial influence upon the wound. It has greater vitality and a better appearance. The leucocytes are at least as numerous and more active, the amount of secretion is decreased, and cicatrization is rapid.

(2) Credit cannot be given to the bacteriologists who declare that iodoform has no antiseptic action. They have attained their results by the use of culture media which did not dissolve the iodoform. When natural media are used for tests *in vitro* an active antiseptic action is seen.

(3) Iodoform decreases the virulence of the staphylococcus and streptococcus pyogenes.

(4) The iodoform neutralizes or counteracts the microbic toxins, but this neutralization or counteraction is only partial.

(5) The iodoform does not hinder, even to a slight extent, the ameboid movement and phagocytic action of the white corpuscles; but, on the other hand, stimulates their ameboid movement.

⁶ Archiv. f. klin. Chir., 1896, Band xxxv, Heft 4; American Journal of Medical Sciences, August, 1897, p. 232.

SUTURE OF THE LATERAL SINUS.

The suture of large veins, when wounded, is a surgical procedure which very recently has come into practice, and, like the ligature and clamp to control hemorrhage, was suggested by the exigencies of operations, attempts being made by surgeons to preserve the patency of large veins in order to obviate the disadvantages, perhaps death, which would follow their closure.⁷ Successful experiments upon animals have been reported from time to time during the last eight years, and many surgeons have obtained good results by suturing the axillary, femoral, internal jugulars, and other large venous trunks. One of the most interesting of these successes was the suture of the inferior vena cava by Schede, after its injury, in an operation upon the kidney. At autopsy, some time later, it was seen that the stitches had held perfectly, and that the lumen of the vessel was well preserved. But so far as known, Schwartz reports⁸ the first successful attempt at suture of the lateral sinus. His patient was a man, aged twenty-six, who presented himself with necrosis and a sinus behind the left ear, following a kick from a horse received three months before. At the operation (November 24, 1895) a piece of bone, the size of a silver dollar, was found depressed. It was adherent in part to the dura mater, and, despite every care, the lateral sinus was opened during its removal, a rent nearly half an inch in length being made. Hemorrhage was profuse, but when two fine-silk stitches placed in the wounded vein were drawn tight the bleeding was controlled. The wound was lightly tamponed with iodoform gauze, and the patient made a good recovery. The central portion of the depressed area of bone was necrotic, and it was at this point that the adhesion to the sinus existed.

TRAUMATIC HEMORRHAGE INTO THE WHITE BRAIN-SUBSTANCE CURED BY SURGICAL INTERFERENCE.

Borsuk and Wizel⁹ report a case of hemorrhage into the white substance of the brain, followed by aphasia, hemiparesis and Jacksonian epilepsy, which was cured by surgical interference.

After the removal of a clot from the dura and the relief of acute symptoms, the patient had repeated attacks of Jacksonian epilepsy. The reopened wound showed nothing abnormal, but a long hypodermic needle passed deeply into the brain substance drew out a blood-stained fluid. The dura was then incised, the needle again passed, and at the point from which the blood-stained fluid was withdrawn a deep incision was made down to the white substance. Bloody fluid and blood-stained contused white matter were removed; a strip of iodoform gauze was inserted, and the wound sutured about it. The strip of gauze was removed twelve days after the operation, and with it about a teaspoonful of blood-stained fluid. The wound then closed and the patient made a complete recovery.

This observation leads to the following conclusions:

(1) Extravasations of blood of traumatic origin can be removed from the brain-substance by surgical methods, as well as contused and destroyed brain-substance, and in the same manner pathological and circumscribed portions of brain-matter.

⁷ Medical News, May 29, 1897, p. 704.

⁸ Gaz. Heb. de Med. et de Chir., October 22, 1896.

⁹ Archiv. f. klin. Chir., 1897, Band liv, Heft 1; American Journal of Medical Sciences, June, 1897.

(2) It is possible that extravasations of blood other than those of traumatic origin may be removed by surgical interference.

(3) The brain does not resent surgical procedures more than any other part of the body.

NOTES ON THE ANATOMY, DEVELOPMENT, PATHOLOGY, AND SURGERY OF THE FRONTAL SINUSES.

Collier¹⁰ has written an article on this subject, and states that the frontal sinuses are generally two irregular cavities between the inner and outer tables of the frontal bone, near the root of the nose. In the fresh state these cavities are lined with a thin, pale, closely-adherent mucous membrane, and separated from each other by a well-marked septum. They usually communicate separately with the corresponding nasal cavity by an opening, variable in size, leading into the anterior extremity of the middle meatus of the nose. The examination of a large number of frontal sinuses in the moist and dry state discloses many points of interest. In the first place there is no space between the tables of the frontal bone before the seventh year. There may be a complete absence of these cavities even in extreme old age.

The orbital plate of the frontal bone is frequently the site of a large cavity, communicating with, and forming a part of, the frontal sinuses. The frontal sinus of one side may not communicate with the nose or its fellow of the opposite side, but may communicate with the anterior ethmoidal cells of the same side. The septum dividing the two sinuses is usually partly bony and partly fibrous, but is always well marked. It may be entirely bony or entirely fibrous. Its central position is constant. The author has never found a frontal sinus not in communication, directly or indirectly, with the nose. The evolution of the frontal sinuses is not complete until the twenty-first year.

The lining membrane of the frontal sinuses is but an extension of the lining membrane of the nasal cavity through the infundibulum. It differs widely in character from the nasal lining membrane. It is extremely thin, and in the healthy state pale in color, and intimately adherent to the subjacent periosteum.

Latent empyema of the frontal sinus is not necessarily associated with any other affection in the throat or nose. The onset is usually undefined, and patients have merely perceived that from a certain date without well-marked cause they began to suffer from pain and uneasiness in the situation of the frontal sinuses (Professor Ogston). After a while headache at the root of the nose, varying in intensity but always present, is a main feature of these cases. A discharge of pus, not abundant but variable in quantity if looked for, may generally be made out. Pus may also be found at the anterior part of the roof of the cavity, but is small in amount and rarely visible. Pain or tenderness on pressure may or may not be present, but percussion with the fingers or a pleximeter generally elicits some uneasiness. The pain varies in some degrees, it is constantly present, but is seldom acute or unbearable. Bending forwards, stooping, or reading increases the trouble, and, as a rule, it is increased when in the recumbent position and after sleep. Dull, damp and rainy weather increases the discomfort; but high altitudes and bright and dry atmospheres improve matters considerably. Many of these cases escape diagnosis, and are treated

with bromides and iodide of potassium, shower baths, and the usual list of remedies for headaches without material benefit.

Resort must be had, then, to opening the sinuses in front at the root of the nose in the mid-line, or at the inner and upper angle of the orbit. A strong and fatal objection to this latter procedure being that the empyema may be one-sided, and it is impossible as yet to make sure on which side the disease is located. The procedure requisite to open the frontal sinus from the front is the following: The patient being anesthetized, preferably with chloroform, and the interval between the eyebrows being divested of any hairs and made scrupulously clean, a note is to be made of the exact spot in the mid-line on a level with the upper margin of the orbits. This, for the purpose of the operation, may be termed the "pin spot," as it is the spot where the pin of the trephine is subsequently placed. An incision should be made exactly in the mid-line commencing at the root of the nose below the glabella and carried upwards for about two inches. In this incision everything is divided to the bone. There is no hemorrhage, as a rule. Next, the pericranial covering is raised by an elevator and retracted to each side with blunt hooks or retractors. Bone to the extent of a five-shilling piece will now have been exposed. A trephine with a crown the size of a six-penny piece or less should now be so placed on the glabella that the pin of the trephine enters the bone at the "pin spot." The trephine is worked in the usual way with caution, examining with a fine probe the depth of the incision after every few twists. As it is important to remove the button of bone without lacerating or opening the lining of the sinus, great care must be observed during the last few twists of the trephine. The trephine does its work first below, and there is always some difficulty in removing the button, the bony septum or arch dividing the sinuses retaining it above. By careful manipulation with an elevator the button of bone is detached, leaving the mucous lining of the sinus intact. This step is important. One or both sinuses may be healthy. The nature and character of the contents is obscured by admixture of blood.

The wound is to be accurately joined, the pericranium and pericranial aponeurosis, as well as the skin, being separately and carefully adjusted. The tube may protrude from the centre of the wound for the first few days for the purposes of irrigation, but subsequently may be shortened or dispensed with entirely. The result of this operation is usually immediately beneficial. The patients lose their troublesome symptoms and are permanently relieved. The wound healing by first intention there is no scar or disfigurement, and the line of the incision is scarcely perceptible.

(To be continued.)

QUALIFICATIONS TO PRACTISE IN THE YUKON.—Physicians desirous of legally practising in the Klondike region may do so (1) if they hold British qualification and pay a registration fee of \$50; (2) not having such qualifications, they must pass an examination and pay the same fee. Dr. H. N. Bain, Prince Albert, N. W. T., is the registrar of the territories. The authorities are insisting on the strict carrying out of these regulations. — *The Canadian Medical Review*.

¹⁰ *Lancet*, June 12, 1897, p. 1809.

Reports of Societies.

AMERICAN SURGICAL ASSOCIATION.

NEW ORLEANS, APRIL 19-21, 1898.

(Concluded from No. 18, p. 429.)

DR. W. W. KEEN, of Philadelphia, read a paper entitled

A CASE OF APPENDICITIS, IN WHICH THE APPENDIX BECAME PERMANENTLY SOLDERED TO THE BLADDER, PRODUCING A URINARY FISTULA.

The case above referred to occurred in a young man twenty-four years of age, from whose urethra, at the age of seven, a pin was removed, no history of the insertion of which could be obtained. Some years subsequently the patient suffered from a supposed abscess of the prostate from the spontaneous bursting of which a fecal fistula was established between the bladder and the rectum, and several attacks of cystitis followed. Numerous efforts were made to locate the two ends of the fistula and the conclusion reached was that the rectal end was very near the surface. At the age of twenty-five years he was first operated on, and a perineal section was done, but the fecal fistula still continued. The formation of a artificial anus was then decided upon, the result of which was not altogether satisfactory, fecal matter frequently passing into the bladder before any was passed out of the artificial anus, and after eating strawberries the seeds were found in the urine before they escaped from the anus. These facts seemed to indicate that the fistula was between the bladder and some point in the intestinal tract considerably above the site of the artificial anus. The third operation was consequently performed, when a very long appendix was found dipping into the pelvis, the tip lying just behind the prostate and solidly incorporated in the wall of the bladder. A cuff of peritoneum was dissected from the appendix and used to cover the stump, and the meso-appendix was then divided. The cecal end of the appendix was treated in the same way, and the abdominal wall closed without anything being discovered in the way of a point of connection between the bladder and the bowel. Subsequently a fourth operation was performed to close the artificial anus and to destroy a spur which existed at the site of the anus so as to restore the entire calibre of the bowel. Shortly after leaving the hospital attacks of vomiting and constipation occurred, and twenty-four days after the last operation the patient died. At the necropsy, twenty-seven hours later, the one striking fact observable was the absolutely black color of the small intestines in the lower part of the abdomen, and an examination showed that seven or eight feet of the ileum had been rotated to the right in one vast volvulus. Its mesentery formed a band which stretched across the ileum just before it joins the cecum, and this had evidently obstructed the ileum sufficiently to cause gangrene.

The diagnosis of a prostatic abscess was a very reasonable one, since an appendix dipping into the pelvis and anchored by its meso-appendix immediately behind the bladder and a terminal appendical abscess so close to the prostate might well be mistaken for this condition. The possibility of the involvement of the appendix never occurred to those in attendance. Although appendicular abscesses bursting into the

bladder are not at all uncommon, I know of no case in which the appendix has been so thoroughly united to the wall of the bladder as to form as it were a third ureter. While it may be said that a fifth operation, in the form of an exploratory abdominal section, should have been done, the uncertainty of the diagnosis, together with the fact that the patient had been operated on so much, caused me to refrain.

DR. ROSWELL PARK, of Buffalo, mentioned two cases of pins in the urethra which had come under his observation, and which he believed to have been swallowed, although there was no history in either case as to how the pins got there.

DR. N. B. CARSON, of St. Louis, had also found a pin in the urethra. In connection with Dr. Keen's case he also reported one in which a horse-shoe-shaped appendix, 13 inches long, had been found by him some time since.

DR. W. W. KEEN said that it was not at all unlikely that the pins in these cases were swallowed.

DR. GEO. R. FOWLER, of New York, read by title a paper on

THE USE OF ANIMAL TOXINS IN THE TREATMENT OF INOPERABLE MALIGNANT TUMORS.

The various headings under which the author discussed the subject were "The Cure of Malignant Disease by Accidental Erysipelas," "The Use of the Septic Products of the Streptococcus Erysipelatis," "The Use of the Mixed Toxins of the Streptococcus Erysipelatis and the Bacillus Prodigiosus," "The Dangers of the Treatment," "The Condition of the Tumor under the Influence of Erysipelas," "Treatment with the Toxic Blood Serum of Animals Infected with Streptococcus Erysipelatis," "The Use of the Venom of the Cobra Capello" and "The Influence of Artificially Produced Suppuration upon Malignant Growths."

HYPERTROPHY OF THE PROSTATE GLAND AND SUGGESTIONS IN REGARD TO ITS TREATMENT.

was the subject of a paper by DR. L. C. LANE, of San Francisco, which was read by title.

The various palliative and operative methods were briefly referred to. In the opinion of the author the treatment of prostatic enlargement is likely to receive much attention from those in favor of castration. Two cases operated upon by the author were then briefly described, one of whom died while the other recovered.

RAPID DISAPPEARANCE OF AN APPARENTLY HOPELESS SARCOMA OF THE SCAPULA WITH AN EXTENSIVE STREPTOCOCCUS WOUND INFECTION,

A CASE OF VIOLENT STREPTOCOCCUS INFECTION OF AN AMPUTATION WOUND, WITH THREE MONTHS' TREATMENT WITH ANTITOXIN INJECTIONS OF A ROUND-CELLED SARCOMA OF THE ANKLE,

by DR. M. H. RICHARDSON, of Boston, were read by title.

SOME CASES NOT OPERABLE,

by DR. D. W. CHEEVER, of Boston, was read by title.

THIRD DAY. — MORNING SESSION.

This was devoted to Council and Executive Sessions.

AFTERNOON SESSION.

DR. T. F. PREWITT, of St. Louis, read a paper on

GUNSHOT INJURIES OF THE SPINE, WITH REPORT OF
A CASE.

A case illustrating this form of injury and resulting in recovery was described at great length by the author, who then referred to the writings of a number of prominent surgeons on the treatment of these cases.

The author divided these injuries into three classes: (1) those that simply fracture the arches, (2) those that invade the canal crushing the cord and damaging the vertebra, and (3) those complicated by serious injury to the abdominal or thoracic viscera. Details of cases, with the result of treatment occurring in the practice were then given, and the author stated that of 49 cases treated since the aseptic era 24 had been subjected to operation resulting in 11 recoveries and 13 deaths.

The author concluded his paper by stating that—

(1) It is the duty of the surgeon to advise immediate operation in all cases of gunshot wound of the spine, provided the wound had involved the posterior or lateral parts of the spine at an accessible part, unless the condition of the patient is such as to indicate clearly that he is hopelessly crippled.

(2) To wait to see whether nature is competent to restore the damage is to wait until irreparable damage has been done in many cases and rapid degenerative changes, meningitis and myelitis, have resulted. The delay permits of the continuance of conditions the removal of which is the purpose of the operation. These considerations apply with greater force, if possible, in gunshot injuries than in others.

(3) The presence of complications due to penetration of the great cavities and injury of the viscera will influence the question of operation, but not necessarily forbid it.

Attached to the paper was the tabulation of cases already referred to.

DR. W. W. KEEN, of Philadelphia, spoke in favor of operating for gunshot injuries of the spine in the absence of evidence of a total transverse lesion, the principal index of which would be the entire loss of the patella reflexes. In looking up the question of the surgery of the spine some years ago, he noted that although there were very few cases of suturing the spinal cord on record, yet in no case did the result seem to be good.

DR. MAURICE H. RICHARDSON, of Boston, expressed great hesitancy in operating on these cases, on account of the difficulty of diagnosing the conditions present.

DR. H. L. BURRELL, of Boston, believed that the only way to arrive at a proper recognition of these cases was to first understand the pathological condition existing in the cord; and to do this, all cases should be opened up and examined unless contraindicated by the presence of shock.

He cited the case of a woman who died thirty-six hours after having jumped from a window, doubling the spine on itself and causing complete paralysis. At the autopsy it was noted that red softening had already begun, although no compression of the cord was apparent. In his opinion this was evidence in favor of prompt operative interference for the removal of a clot, bullet or fragment of bone, especially if one was inclined to operate in these cases.

He referred to a report which he presented to the British Medical Association in 1894 containing statis-

tics on this subject which he divided into those extending from 1864 to 1886 and to those from 1887 to 1894. The cases referred to in the first group were treated by immediate rectification of the deformity by force; and out of 100 cases thus treated 18 per cent. recovered. The second group contained those cases treated by immediate suspension and the use of a plaster-of-Paris jacket, and as a result 28 per cent., or an increase of 10 per cent., recovered.

DR. N. B. CARSON, of St. Louis, was also of the opinion that there would be a certain number of recoveries after operation. He referred briefly to an accident which happened to a man who while trying to enter a low doorway riding on a load of hay was caught by the neck and pulled forward, causing a complete dislocation of the spine followed by loss of sensation and retention, and paralysis of the bladder. He was immediately suspended with Sayre's suspension apparatus and by extension and counter-extension the dislocation was readily reduced. No sooner was this done than the patient immediately collapsed and lost consciousness, so that he had to be lowered at once and after being well padded was left alone. The further treatment consisted in the application of a plaster-of-Paris jacket; the patient made an excellent recovery.

DR. P. S. CONNER felt that it was well to always ascertain the exact character of the injury and remove any substance that might be pressing upon the cord, to do which he believed an operation both necessary and justifiable. The symptoms present, in his opinion, did not ordinarily act as an index to the real character of the lesion present. In spite of the fact that the mortality from operation would be considerable, he believed it the preferable method of treatment.

DR. F. S. DENNIS, of New York, stated that he had published some time since a number of cases treated with the plaster-of-Paris jacket, in which he obtained excellent results.

A method which had found great favor with him was the administration of large doses of the iodide of potash during the time the patient was wearing the plaster-of-Paris jacket, as, in his opinion, this drug was of great benefit in absorbing the clot.

DR. CARSON continued his previous discussion by stating that he had been very well pleased with the results following the employment of the plaster-of-Paris jacket, and particularly in certain cases.

DR. W. H. CARMALT thought, that, in order to prevent infection in cases of gunshot wound, one should operate without hesitation. He recalled, however, one case where operation was refused and the application of the plaster-of-Paris jacket brought about an excellent recovery; while, in the second case, presenting practically the same symptoms, the same method of treatment was of no avail, as the patient died in three days. He did not think surgeons could at present formulate any rules for the treatment of these injuries.

DR. BURRELL also continued his previous discussion by commenting on the cases reported by Drs. Carson and Carmalt, and stated that no doubt a reunion of the fibres of the cord by the formation of connective tissue often took place in cases of these injuries, connective tissue subsequently undergoing absorption.

DR. W. S. HALSTED, of Baltimore, reported having had one successful case of this kind in his experience. He agreed, however, in the main with what had already been said on this subject.

DR. PREWITT closed the discussion, and commented

upon the importance of the work done in this direction by Drs. White and Burrell.

Fractures of the kind referred to by Dr. Carson should be called simple fractures, in the speaker's opinion, especially as they oftentimes resulted from a displacement of the body of the vertebra itself. Pressure upon the cord can as well be caused by a dislocation as by a fracture, and this is particularly true if there be a fracture of the lamina. He believed that gunshot wounds should always be considered as compound and local, and considered that the inability to determine the method of procedure in these cases was due principally to the fact that one was not able to judge, from the symptoms present, what the exact condition of the cord was, thus making an operation necessary to determine this point; and he did not think that any harm could be done by opening up and disinfecting the wound, particularly when it had been proven that most of the cases would die any way. He was strongly in favor of giving the patient the benefit of whatever doubt might exist, especially as one might at least reduce the likelihood of meningitis, even though life might not be spared very long.

He commented on the cases reported by Cooper and Hawley, and drew especial attention to one reported by the latter of gunshot injury of the spine where the cause of death, which occurred five and a half years later, was due to irritation caused by a fragment of bone. He was confident of the opinion that this man's life could have been spared many years had an operation been performed at the time of the accident and the fragments removed.

Although in the case of Dr. Briggs, referred to by the author in his paper, nothing was said about the condition of the patellar reflexes, yet he was inclined to the opinion, that, as claimed by Dr. Briggs, complete severance of the cord really occurs, in view of the fact that, although previous to the suturing of the end, pain, sensation and motion were absent, these conditions were all present immediately thereafter.

With regard to the use of a plaster-of-Paris jacket, the author had been quite favorably impressed with the results obtained, and called attention to the statistics of Dr. Burrell. If, in cases of gunshot injury, one had good reason to believe that there was no pressure upon the cord, he would not urge immediate operative interference, but he was of the opinion that in all these cases pressure symptoms would be noted from the presence of spicules of bone and pieces of lead long after the accident.

As stated by Erichsen, as little harm could be done by operation and a few cases would be rescued, the speaker believed operation advisable.

The following papers were read by title:

NOSOLOGY AND MORPHOLOGY OF TUMORS, TRUE AND FALSE,

by DR. EDMOND SOUCHON, of New Orleans.

RADICAL CURE OF FEMORAL HERNIA IN THE LIGHT OF RECENT METHOD,

by DR. RUDOLPH MATAS, of New Orleans.

A CASE OF FECAL COMMUNICATION WITH THE BLADDER,

by DR. GEO. R. FOWLER, of Brooklyn.

DR. JAMES E. MOORE, of Minneapolis, read a paper entitled

HYSTERIA FROM A SURGICAL STANDPOINT.

Hysteria is so frequently met with in surgical cases that it is something one must always be looking for, or grave errors in diagnosis and prognosis will result. Hysterical symptoms not infrequently occur as a complication of operation while a rise of temperature after an operation may also be neurotic.

The author then referred to the peculiarities of some cases of phantom tumors and to one of hysterical aphonia following an operation on an adult male. He urged great care in operating, or even advising operation upon neurotic females in whom the subjective symptoms are often out of all proportion to the objective, especially as these women, not only are often willing to submit to grave surgical operations when their sufferings are entirely imaginary, but because they not infrequently derive considerable morbid pleasure from the procedure. In his opinion the osteopaths and Christian Scientists rather than a surgeon should undertake the treatment of these cases.

As an illustration of the willingness with which women in this condition will submit to an operation, he cited a case where a woman was anxious to have an appendectomy performed for appendicitis, although she had no signs of this disease.

The most skilled diagnosticians will often be misled by the mingling of real diseases with hysterical hyperesthesia, anesthesia, paresis and seemingly complete paralysis. As a valuable aid to diagnosis the author referred to Patrick's method of diagnosing hysterical hyperesthesia or anesthesia by means of the shifting border of the affected area.

In Dr. Moore's opinion the surgeon most frequently meets with hysteria in joint and spinal ailments, and a surgeon should always remember to avoid mistakes in diagnosis and prognosis in the case of hysterical joints, as they bear such a close resemblance to joints the seat of disease. These hysterical joints often follow an injury, and there will be slight atrophy but no local rise of temperature; in fact, the temperature may be subnormal, no marked swelling but slight puffiness may be noted. There is usually marked restriction of motion, which is voluntary in character, however, and readily overcome when the patient's attention is directed to something else. The muscular spasm in these cases is more pronounced, and different in character from that in tuberculosis; and the deformity is often exaggerated, and differs considerably from that which is present in disease. Hysterical joints are, of course, most prominent in hysterical persons, but have been observed in persons not in any way hysterical. The prognosis in the case of an hysterical joint is good and it is very rare that organic changes occur.

The author then dwelt at great length upon various valuable means of treating these conditions—among others correction under anesthesia—but did not consider any cutting operation necessary. Hysterical patients, he observed, may develop a tubercular joint, but changes in the cord do not occur from hysteria; and besides hysterical spine is easily diagnosticated, as it bears no resemblance whatever to deformity as a result of disease.

The following officers were elected for the coming year: President, Dr. W. W. Keen, of Philadelphia; First Vice-President, Dr. A. Vander Veer, of Albany; Second Vice-President, Dr. C. H. Mastin; Secretary, Dr. H. L. Burrell, of Boston; Recorder, Dr. DeForest

Willard, of Philadelphia; Treasurer, Dr. G. R. Fowler, of Brooklyn.

Delegate to the Association of American Physicians and Surgeons: Dr. Wm. M. Mastin; Alternate, Dr. F. H. Gerrish, of Portland, Me.

Place of next meeting, Chicago, Ill., time to be determined at a later date.

THE OBSTETRICAL SOCIETY OF BOSTON.

MALCOLM STORER, M.D., SECRETARY.

REGULAR Meeting, January 18, 1898, the President, DR. FRANCIS H. DAVENPORT, in the chair.

DR. J. B. SWIFT reported

TWO CASES OF EXTRA-UTERINE PREGNANCY, ONE AT FULL TERM,¹

and showed specimens.

DR. W. F. WHITNEY, by invitation, spoke of

THE PATHOLOGY OF THE CONDITION.²

DR. J. R. CHADWICK spoke of the difficulties of determining how soon after pseudo-labor lithopedion formation is likely to have taken place. He instanced three cases upon which he had operated, one five months, one nine months and one two and one-half years after the death of the child. There was no trace of a deposit of lime salts in any of these cases. He feels somewhat conservative about operating upon such cases in the absence of symptoms.

DR. M. H. RICHARDSON rather inclined to early interference after spurious labor. When the diagnosis is made before rupture immediate operation is indicated. Death after rupture is sometimes so sudden that it must be due to peritoneal shock rather than to acute anemia.

DR. G. J. ENGELMANN said that the idea of deferring operation after spurious labor even for years did not harmonize with his experience. It is well enough to wait for two or three months, if there are no symptoms. He regarded lithopedion as only one of the terminal forms of a retained fetus. He instanced a case, as an argument for early operation, in which he had seen the fetal bones discharged through the bladder and rectum after a long period of invalidism. The likeness between the decidua of extra-uterine pregnancy and that of normal pregnancy ceases between the fourth and the sixth weeks. After four or five months all resemblance is lost, as there is no longer the continual stimulation of the uterus as in normal pregnancy.

DR. WHITNEY said the decidual membrane shows little difference in Dr. Swift's two cases, though they are separated by so wide an interval of time. The curette would enable a microscopist to make a diagnosis in doubtful cases if the membrane had not already been expelled and lost.

DR. C. W. TOWNSEND spoke of the frequency with which intra- and extra-uterine pregnancies are combined. A recent writer has collected twenty such twin pregnancies.

DR. CHADWICK asked whether adhesions were the rule or the exception.

DR. WHITNEY said they were not usually seen about sacs that had not ruptured, but that they might be expected in cases of retained fetus.

¹ See page 441 of the Journal.

² See page 444 of the Journal.

THE BOSTON

Medical and Surgical Journal.

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THE MEDICAL SERVICE OF THE ARMY.

As in our editorial of last week we devoted some space to the medical aspects of modern naval warfare, it would seem only right that we should mention the care of the injured in case of battles fought on land. We are enabled to gain some definite ideas on this point from the statement prepared by Lieutenant-Colonel Forwood, Deputy Surgeon-General of the Army. As in the naval battle, the percentage of those fatally wounded on land will exceed any thing of which we have had previous knowledge. The modern rifle bullet will cut cleanly through the tissues, severing arteries in its passage, thus giving rise to most severe hemorrhages, but at the same time offering greater possibility to those who survive, for healing of tissues which have been so cleanly cut and not mangled as by the bullets used in the late war. When we read that five or six men placed in a row will not afford sufficient resistance, but that the rifle projectile will pass through them all one after the other, we can gain some idea of its velocity and force.

Since the number of wounded will be inevitably greater, the preparations for their care have been all the more thoroughly studied and planned for. The first duty of the medical corps during action is, of course, to remove the injured to some sheltered spot out of the line of fire. Here at once a problem arises because the range of the rifle is so great that such a spot will be hard to find, and the surgeons, themselves, will run a much greater risk of being shot than in warfare of the past. The small arms of to-day are said to carry three miles and the field cannon five miles.

To each regiment there is allotted one surgeon and three assistant-surgeons, one hospital steward and two assistants, and twelve privates. This is not a very large number of care-takers, when one realizes that in times of peace, there is, in most communities of the Eastern States, an average of about five hundred unmenaced persons to one physician and a large number of nurses.

The plan, as at present outlined, is that the rear of each division of the army will be provided with dressing-places for emergencies, to which those wounded would be immediately brought. Considerably farther in the rear, there will be an ambulance station, where more detailed work of a surgical sort may be done. At a still greater distance from the field, will be three hospitals corresponding to the three brigades composing that division. These field hospitals will naturally be tents, each capable of affording accommodations for four hundred or more wounded. A large number of ambulances serve the purpose of transportation of the wounded from the front to the hospital. During action, the medical staff takes as sheltered a position as possible in the rear of its own regiment, in order the better to provide for the immediate wants of the wounded. It is intended that those surgeons who work directly behind the fighting line shall be provided with simple drugs for the relief of pain, shock, fainting, heat or exhaustion. They will also be provided with such surgical instruments as are required for minor operations.

Should the arrangements above detailed prove feasible in time of action, and we see no reason why they should not, it is evident that a hitherto unprecedented efficiency of the medical corps will be attained. A comparison is therefore of interest with the conditions which prevailed in the late Civil War. Apart from the entire lack of knowledge of the principle of antiseptics which entailed so much suffering — unnecessary from our present point of view — many wounded soldiers in that war received their first attention after travelling long distances to the permanent hospital. With no attention to cleanliness, and often with supuration beginning, the unfortunate soldier received treatment only after a general septicemia had set in, which either ended his life or at least cost him a limb. All this will be avoided in these more modern times.

On the other hand, it must be remembered that the skill of the experienced surgeon will be much more often called into play, and that, on the whole, the number of patients under his care will be very much greater.

The work of the medical corps will also be increased, through the fact that the wounded will be scattered over a much greater area than has heretofore been the case, owing to the enormous distance at which a modern rifle projectile may prove fatal. The finding of the wounded, possibly under the fire of the enemy's guns, may well prove a test of courage as great as that called for in the more active and exciting engagement itself. In order to prevent a loss of identity of those killed in battle, it has been proposed that every soldier going into battle during the present war shall wear a small metal tag, about the neck, next the skin, bearing his name, company, regiment, and date and place of birth.

In addition to the surgical work, which must always form a large part of the army physician's duty, there is also to be considered that even more difficult task of prophylaxis. As is well known, scurvy, typhoid

fever, dysentery, malaria, cholera, and notably in the present case, yellow fever and small-pox may offer as great a danger to the integrity of the army as the missiles of its enemy. We may likewise look for a very great decrease of this danger in the present war with our improved knowledge of bacteriology and hygiene, and with the means now at our disposal for combating these insidious foes. We feel sure that danger from these sources is relatively smaller than it formerly would have been. It would certainly be a reflection on our modern sanitary methods if yellow fever should prove so direful an enemy as contemporary newspapers might lead us to suppose.

To draw analogies between the Spanish soldiery and our own in the event of an occupation of Cuba during the summer months is manifestly absurd. From all accounts the Spanish army is poorly fed and demoralized and in no physical condition to withstand the inroads of disease. On the other hand, if our army goes to Cuba, it will go fully prepared to meet this danger as all others, and there can be no question but that it will be successful.

A further important adjunct to the work of the medical corps may be eventually the addition of a large number of trained nurses. Since the days of Florence Nightingale the services of women in military hospitals have needed no further demonstration. Such devotion no doubt exists equally to-day; and we shall have beside it all those advantages which come from a careful previous training in the treatment of the sick. As in our modern civil hospital, so in the extemporized hospitals of war, there can be no question that the presence of the skilled nurse will prove of great value to the physician and of great comfort to the patient.

PHYSICAL EXAMINATION FOR THE VOLUNTEER SERVICE.

THE large number of rejections of candidates for the volunteer service from the Massachusetts militia which have resulted from the physical examinations has proved very unpleasant for the rejected candidates, and has called attention to the need of similar examinations for candidates for the State militia. As many as twenty per cent. of the members of certain militia regiments who have volunteered have been rejected, and the percentage in all the regiments has been large.

If the State militia are intended, as they should be, to be capable of military service when required, then the physical examination required for enlistment should be just as thorough and searching as that for the regular army. The surgeon-generals of the State have for some time been endeavoring to secure rules requiring such examinations, but owing to the expense, or for some other reasons, their appeals have been unheeded. The present emergency has shown that their efforts have been well directed. If the

militia organizations desire, as many of them naturally in time of war do, to enter the regular service with their present organization, then the physical standard required for enlistment in the militia must be as high as that for the regular army.

A regiment depends for its effectiveness upon the capacity of the individuals of which it is composed, as well as upon its thorough drill and organization. If large numbers of its members, when it is put upon a war basis, must be rejected by physical examination, then its organization must be broken up, and something of that perfection in drill, and of the *esprit du corps* which has resulted from long association, must be lost.

If, as the medical officers have urged, the physical standard for enlistment in the militia had been kept sufficiently high, much time and trouble would now have been saved, many disappointments avoided, and the militia organizations which volunteered as a body, could have gone practically unchanged into the regular volunteer army.

MEDICAL NOTES.

DR. WILLIAM OSLER is to receive the honorary degree of LL.D. from the University of Aberdeen.

THE AMBULANCE-SHIP "SOLACE."—The ambulance-ship *Solace* has been fitted out under the terms of the Geneva Convention, will fly the Red Cross flag at the fore, and will render aid to friend and foe alike. Spanish warships, Spain being signatory to the Geneva Convention, cannot fire upon the *Solace*, though perhaps if they did it would not seriously interrupt her work.

PRECAUTIONS AGAINST YELLOW FEVER.—Surgeon-General Wyman, of the Marine-Hospital Service, is perfecting plans to prevent the introduction of yellow fever from Cuba. Rigid quarantine regulations are to be enforced at Ship Island and Dry Tortugas, and Marine-Hospital inspectors are to be stationed at every point along the Atlantic Ocean and the Gulf of Mexico where troops will land or return from Cuba.

BUBONIC PLAGUE AT HONG KONG.—The steamer *Columbia* which arrived at Tacoma, Wash., from the Orient on May 5th, reported that during the week previous to April 6th, cases of bubonic plague in Hong Kong had increased rapidly, and the Colonial Government was considering various measures for preventing a spread of the malady. The correspondent of the *Hong Kong Press* states that forty new cases of the plague were occurring daily.

THE MARINE-HOSPITAL SERVICE TO AID THE ARMY AND NAVY.—Dr. Walter Wyman, Supervising Surgeon-General of the Marine-Hospital Service has notified the medical officers of the service that the United States Marine Hospitals are hereby made available for the reception of the sick and wounded of either the United States Army or the United States Navy, and that they are hereby directed, upon a writ-

ten request of the proper military or naval authority, to receive and care for said patients; the Marine-Hospital Service to be reimbursed the actual cost of maintenance.

PERSONAL TESTIMONY AS TO EXISTENCE NOT TRUSTWORTHY.—Unconscious and unintended humor is, as has long been recognized, the richest. An English contemporary, as we recently pointed out, spoke of "the late Dr. Weir Mitchell," and in a bright, genial letter Dr. Mitchell writes the editor that he has never been "late," and is just now punctually present, etc. As it happened, Dr. Mitchell's letter was inserted first in the correspondence columns, and closely following the conspicuous and warning notice, *We do not hold ourselves responsible for the opinions of our correspondents.* This unintended addition of insult to injury hardly needs further editorial excuse.—*Philadelphia Medical Journal.*

A GALLANT "NON-COMBATANT."—After Surgeon La Monte's admirable conduct on board the *Topoka*, how can the idea be entertained that staff officers are non-combatants? We mean, of course, non-combatants in the sense of not exposing themselves to peril. The *Topoka* was forced to pick up hastily a crew in a foreign port. The best she was able to do was to ship a brood of "wharf-rats" of various tints of villainy. They were in a semi-mutinious state all the way to New York. The only naval officers on board were the commanding officer, Lieutenant Knapp, and Surgeon La Monte, and these two gentlemen took turns, night and day, on the bridge. We do not mean to imply that such gallant actions are unusual in the medical corps of the navy; we simply make use of this recent instance to emphasize the fact that they are not. The truth is that nobody on board a man-of-war can properly be called a non-combatant.—*New York Medical Journal.*

DR. GUITERAS ORDERED TO THE FRONT.—Dr. John Guiteras, professor of pathology in the University of Pennsylvania, has been instructed by the Surgeon-General of the United States Army to proceed to Tampa, Florida, to act as medical adviser to the commander of the army which it is expected will invade Cuba. Relative to the dangers which may beset troops in Cuba, and the precautions which should be adopted, Dr. Guiteras is said to have made the following statement: "It is possible to prevent the infection of military garrisons, though whether it can be done in a campaign remains to be seen. Yellow fever is circumscribed within certain areas, and if it is possible to keep the troops away from those areas there will be little danger of infection. Contrary to the prevailing idea, altitude does not govern the disease. There are no extremely high altitudes in Cuba, and yet there are places where there is no yellow fever. In some places on the coast the disease is not to be found. As a general rule the more important the town, the greater its commercial activity, the more infected it is. Yet a congregation of people in the interior could not origin-

ate yellow fever. The cities where the disease prevails are infected because they are permanently inhabited by a crowd. Still the disease may be carried to a garrison from an infected town. To guard against this the troops must be placed by themselves, in uninfected places, and they must not communicate with infected places. Then, too, no depot of supplies should be placed in an infected port. This is, of course, a desideratum that it may be difficult to obtain for strategic reasons. Ideal conditions are not always possible in a military campaign. Whether or not yellow fever can be kept from the troops depends entirely upon whether these plans can be carried out."

BOSTON AND NEW ENGLAND.

ACUTE INFECTIOUS DISEASES IN BOSTON.—For the two weeks ending at noon, May 11, 1898, there were reported to the Board of Health, of Boston, the following numbers of cases of acute infectious disease: diphtheria 62, scarlet fever 28, measles 123, typhoid fever 15.

THE NORFOLK SOUTH DISTRICT MEDICAL SOCIETY.—The Norfolk South District Medical Society, at the annual meeting held last week in Boston, elected the following-named officers: President, Dr. J. A. Gordon, of Quincy; Vice-President, Dr. G. W. Tinkham, of Weymouth; Secretary and Treasurer, Dr. J. F. Welch, of Quincy; Librarian, Dr. J. F. Welch.

NEW YORK.

DR. HENRY APPOINTED SURGEON OF VOLUNTEERS.—Major-General Roe, in command of the New York Volunteer Regiments, has appointed Dr. Nelson H. Henry, Assistant Surgeon-General of the State, as surgeon on his staff, with the rank of Colonel. Colonel Henry is charged with the general supervision of the medical service of the camp and also with its sanitary and police conditions. The State Society of the Daughters of the Revolution, of which Mrs. Roe, the wife of the General, has recently been elected Regent, on May 6th sent the first relay of supplies promised by the various women's associations for the soldiers of the Army to the camps at Hempstead, Peekskill and Chickamauga.

THE STERILIZATION OF MILK BEGUN AT RANDALL'S ISLAND.—The Department of Charities has accepted the plant on Randall's Island for the sterilization of milk, which Nathan Straus, recently President of the Board of Health, presented to the city, and on May 6th the plant was formally opened. It has a capacity for sterilizing sufficient milk for one thousand infants a day. There are at present six hundred children in the institutions on the Island, and the mortality has been very large among the inmates.

A MODEL SANITARIUM FOR TUBERCULOSIS.—At a meeting of the New York Academy of Medicine held May 5th, Dr. S. E. Solly, of Colorado Springs, read a paper on "The Use of Climate for the Tuberculous." In connection with this subject attention may appropriately be called to the good work being

accomplished by the Sanitarium Gabriels, in charge of the Sisters of Mercy, near Paul Smith's Station in the Adirondacks. This institution has been in existence but a short time, and very little has been published in regard to it. There are now nearly one hundred tuberculous patients there, and it is stated that since August last there has been but one death among them. It has a well-equipped bacteriological laboratory and is furnished with all the modern accessories for the treatment of tuberculosis. The sun-parlor of the Infirmary was the gift of Ex-Governor Morton, the handsome dining-room was fitted up by Ex-Governor Flower, who is one of the patrons of the institution, and a fine new bathing establishment, provided with baths of various kinds, has just been presented by Mr. Henry D. Dickinson. The sanitarium is designed for the treatment of curable cases, not as a home for incurable ones, and for this reason each patient applying for admission is required to present a physician's certificate to the effect that there is reasonable ground to suppose that the disease has not reached an incurable stage.

DEATH OF DR. QUIMBY.—Dr. Isaac N. Quimby, one of the most prominent physicians in the State of New Jersey, died at his home in Jersey City on May 6th, of pneumonia. He was born in Bernardville, N. J., in 1831, and was a graduate of the Medical Department of the University of the City of New York. He was an active member of the American Medical Association for many years and a member of the International Medical Congress at London in 1881. Dr. Quimby was an ardent prohibitionist, and in 1884 was nominated for a Presidential Elector by the Prohibitionist Party. He practised for over thirty years in Jersey City, and leaves two sons, one of whom is a well-known physician in that city.

DEATH OF PROFESSOR LINTNER.—Prof. Joseph Albert Lintner, of Albany, formerly State entomologist of New York, died at Rome, Italy, on May 5th. Dr. Lintner's name was widely and favorably known, and he had rendered valuable services to the State in economic entomology.

A DIMINISHING MORTALITY.—There has been no marked changes in the rate of mortality in the city of late, although it continues to slowly diminish. Thus, in the four weeks ending April 23d, the number of deaths represented an annual death-rate of 18.62 per thousand of the estimated population, against 18.79 in the preceding four weeks. That the decrease is not greater is probably due to the fact that, on account of the exceptionally mild and pleasant weather throughout the month of March, the death-rate was unusually low. The most marked decrease in any of the infectious diseases is in measles. In the four weeks the number of cases reported was 2,056 cases, with 88 deaths, against 2,513 cases, with 100 deaths, in the preceding four weeks. Next to this comes diphtheria, with 840 cases and 155 deaths, against 1,028 cases and 176 deaths. In pneumonia the deaths decreased

from 801 to 776. The deaths from whooping-cough, on the other hand, increased in the four weeks from 48 to 61. The mortality from typhoid fever continues exceedingly small. In the four weeks referred to the average number of deaths was four, against six per week in the preceding weeks. In the week ending April 16th there was not a single death from typhoid reported in the entire Greater New York, and in the week ending April 23d there were but two deaths from it.

THE INTERNATIONAL MEDICAL MISSIONARY SOCIETY.—Dr. George D. Dowkontt, of New York, has just returned from Washington, where he went as the representative of the International Medical Missionary Society, authorized to tender to the Government, on behalf of the Society, the services of a large number of surgeons, stewards and trained nurses. From the President and the authorities of the War and Navy Departments he received such assurances that on his return to New York preparations were at once set on foot for the organization of the contemplated work, under the auspices of a committee of which Dr. Stephen Smith, Dr. Dowkontt and Dr. B. C. Atterbury, of China, now in this country on leave, are members. The International Medical Missionary Society was organized in 1881 and incorporated under the laws of the State of New York in 1886. Dr. Stephen Smith, of New York, is President, and former Governor Pattison, of Pennsylvania, Vice-President of the Society. Gen. A. W. Greely is a member of the Advisory Council, and Mrs. Margeret Bottome, wife of Dr. Bottome, is President of the Woman's Branch.

THE DIRECTORS OF THE POST-GRADUATE MEDICAL SCHOOL NEED NOT REINSTATE DR. KELSEY.—The Appellate Division to-day reversed an order which granted Prof. Charles B. Kelsey a writ of mandamus compelling the Directors of the New York Post Graduate Medical School and Hospital to rescind a resolution revoking his appointment as a professor of surgery and restoring him to the privilege and all the rights and privileges incident thereto. Justice Barrett wrote the opinion, which held that the by-laws of the corporation authorized the directors to remove a professor at pleasure.

Miscellany.

THE LESSONS OF THE INTERNATIONAL CONGRESS OF HYGIENE AND DEMOGRAPHY AT MADRID.

RARELY, if ever, has a great scientific gathering taken place under circumstances so adverse as those surrounding the ninth International Congress of Hygiene and Demography, which was held in Madrid from the 10th to the 17th of April. Considering the extent to which the government element pervades all matters in Spain, it is a marvel that it was possible for it to meet at all at such a crisis. And yet, it did meet; and, although we may not be prepared to coincide altogether with the opinion of the acting president,

Dr. Julian Galleja, that it would prove to be the most influential and far-reaching of all these congresses, there is no denying that it would have been a great success under any circumstances, and that under the exceptionally trying ones in which it was held its success was little short of phenomenal. It was attended by between fifteen hundred and two thousand members, including delegates from nearly every civilized country in both the Old and New Worlds, the United States being represented by Dr. Girard, of the army, and Dr. Tryon, of the navy, who appear by universal consent to have comported themselves under most trying circumstances in such a manner as to gain general approbation. It was unavoidable that, at such a time, some reference to the impending political thunderstorm should find utterance; but the speakers, one and all, bore practical witness to the great truth that science knows no distinction of race, class, creed, or country, but is catholic, one and indivisible, the striving of humanity at large on behalf of humanity at large. This is perhaps the greatest lesson which the ninth International Congress of Hygiene will teach us. It is curious that the enforcement of this lesson should have fallen especially upon the director of the Constantinople School of Medicine, General Mahmoud Pacha, who represented the Turkish government.

The opening address of Dr. Galleja was thoughtful and in every way admirable. He pointed out that sanitation was above all a social science, a science of the people, not merely of the savants. But it was not sufficient to inculcate sound sanitary principles; what was needed was to put them into application, and in doing this there were many obstacles to overcome—financial needs, vested and commercial interests, as well as interference with personal liberty and the sacredness of the home, both of which had at times to be set aside in the enforcement of sanitary principles. To effect this, the interested co-operation of governments was needed, and the greatest result of the congresses had been, in all probability, their influence upon the respective governments of the civilized world. A patriotic reference to the trial through which his country was passing, which, however, he assured his hearers, should not permit anything to be lacking to this solemnization of peace and concord, closed a remarkable address that was greeted with loud and prolonged applause. Among others who spoke at the opening session were Professor Brouardel, dean of the Faculty of Medicine of Paris, and delegates from Germany, Austria, Belgium, Japan, France, Great Britain, Hungary, the United States, Holland, Italy, Mexico, Switzerland, and the Ottoman Empire.

But not only was this political tension not allowed to interfere with the warm official interest of the authorities in this eminently pacific gathering, but the scientific loyalty of prominent personages united therewith to form an object-lesson. The special correspondent of the *Lancet* tells us that Dr. Amalio Gimeno, the general secretary, and Dr. Julian Galleja, the acting president of the congress, being candidates for a seat in the senate, and the elections being fixed to take place during the session of the congress, both showed their estimate of the primary importance of science to humanity by remaining at their posts at the congress in spite of urgent telegraphic appeals from their electoral committees to be present on

election day with their constituencies. If, therefore, there were no other results of a more technical character accruing from the ninth International Congress of Hygiene at Madrid, it would yet remain remarkable for the fact that in a crisis of the greatest possible political tension and national excitement it had in a dignified manner illustrated by practical example the facts that science, as such, knows no country, and that there are men, even in countries not commonly held to be conspicuous for progress in the interest of humanity, with whom neither local interests nor personal ambitions can outweigh the sense of obligation to mankind at large. — *New York Medical Journal*.

Correspondence.

[Special Correspondence.]

THE MORGUE IN PARIS.

PARIS, April 25, 1898.

MR. EDITOR: — Depending largely upon personal predilection, the morgue in Paris is attractive or repulsive to thousands of people annually. Many of the public visit this place out of morbid curiosity, many from curiosity of legitimate nature, others in fear and trembling lest the bodies there exhibited be those of loved friends or relatives. Probably no place in Paris has served the French novelist more frequently, more forbiddingly to the general reader than, since its construction, has the morgue.

This establishment has been in existence about thirty years. Its present condition is much younger, not more than fifteen years having elapsed since it was brought to its imperfect perfection, to its disappointing convenience of to-day. It is perhaps unnecessary to say that the morgue is the building to which all unidentified bodies found in Paris and its suburbs, in the river or on-land, are sent. Bodies also whose identity is undoubted but in which violence, poison, suicide by any method or means has been, or is suspected to have been, the cause of death, even dead fetuses whose history is not clear, are sent to the morgue. The body of a known individual is not exhibited to public view, but may be kept for medico-legal examination. Occasionally the cadavers of persons whose history is clear, the cause of the death of whom is known to be of an innocent nature, not necessarily involving a necropsy, are delivered to the friends without further formality. This procedure, however, probably is rare, because the death almost inevitably gives rise to questions which only an examination post-mortem can answer.

The morgue building is in the shape of a Greek tomb. It is situated at the upper point of the Ile de la Cité, directly behind the Cathedral of Notre Dame and rests upon long piles, the lower ends of which are constantly washed by the river Seine, which at this point has a rather rapid movement and flows on nearly all sides of the morgue. Repairs to the foundation are almost unceasing because the river steadily undermines the setting of the piles. Bodies are exposed to the view of the public in an apartment whose glazed front faces the street. A short partition hides the bodies from actual view of passers, but double doors of entry, always open, give ingress to a steady flow of people who have only to pass behind the partition and, standing between it and the windows of the dead room, they easily see the bodies upon narrow tables which slope towards the windows. The dead room is scientifically refrigerated and bodies remain without change an indefinite length of time. This arrangement is comparatively recent. Twenty odd years ago when the present structure was completed, the number of bodies annually received did not exceed five hundred. Since that time the number has doubled. Moreover, the number of legal autopsies

has multiplied beyond convenience, for owing to the progress of science, these operations by accessory researches of microscopic, chemical and physiological nature have become more and more complicated. Such complications were unforeseen and nothing was provided for them. This state of things is due principally to the fact that Professor Brouardel so influenced and enlightened the Municipal Council and the Préfecture of Police that finally he was allowed to establish at the morgue a course of so-called "Medico-Legal Conferences," which in all their bearings are unique. Unknown bodies which are taken to the morgue, the majority of them coming from the river, are generally in a state of advanced decomposition. If it be possible, after proper washing, they are exposed to view in the exhibition-room in hope that some visitor may identify them. Otherwise, being undressed, they are put into the "cold boxes" of which there are only fourteen in a rear chamber. Not one of these boxes is ever vacant. These bodies are kept as long a time as it is possible to do so, with the expectation that the word "disappeared" may eventually be intelligently replaced by the word "dead," which would mean that identification finally has been achieved. Even *débris* of bodies are thus preserved and all these bodies and *débris* are photographed upon their arrival. As a hygienic measure the clothing of all recognized bodies is sent elsewhere every fortnight to be burned, whereas the garments of unknown bodies are ticketed and kept for twelve months as a later and possible means of identification, with reference to which nothing is neglected.

Every day a medical inspector visits the morgue, examines the newly arrived bodies and notifies the authorities of such as require medico-legal autopsy. It need not be pointed out that the families of the dead crowd upon the morgue, that they require space and, when the law takes from them the bodies of their friends for judiciary post-mortem examination, that a place of retirement is necessary for these people. No such convenience is possible and confusion and crowding become agonizing to the friends and irritating to the morgue officials.

Passing now to the course of instruction founded fifteen years ago by Professor Brouardel, Paris has every reason to be proud of it, for a similar means of education does not exist anywhere else in the world.

It is one of the *Cours fermés* and a special permission as well as a special card of admission are necessary for entrance. Physicians of any country are admitted upon presentation of such a card, to obtain which they must establish their identity and prove themselves graduates of known medical schools. In addition to this precaution a police officer at the door of entrance calls for the card at each visit and writes down its number upon a special list.

Passing through a narrow and dismal corridor the visitor enters the room in which the medico-legal conferences are held, where Claude Bernard once worked and where many a crime has been revealed under the post-mortem knife. It is well lighted by three scuttle windows in the sloping roof and by three double swinging windows in the side overlooking the Seine, and this light is its one redeeming feature. It is grimy, and grim and uncomfortable. An amphitheatre, perhaps six feet high in its most elevated perch, composed of narrow rises separated from each other on the edge of each by a painted board on iron supports, nearly fills all available space. The painted boards are just wide enough to hold a note-book. The students are supposed to stand. There are no seats. In fact the fortunate men sit on the fences or on the edges of the various steps, the others occupy their feet. Nobody is comfortable. The room contains accommodation for about 60 men in a standing position; but on Brouardel's day the average number present reaches 90 or 100 students. Imagine the discomfort! As for the quality of the atmosphere on such days I prefer to be silent.

Professor Brouardel is roped in, otherwise he would be unable to work, for the students, realizing that in order to prove that a murder has been committed and that a man

is to be sent to the scaffold it is necessary to learn how to substantiate the accusation, crowd energetically about the table.

Because of lack of space in this room students are divided into series so that no one of them can attend more than twelve conferences. In spite of this, 200 to 300 men annually are refused cards of admission.

Under these conditions there is barely room enough about the immovable stone table for the operator and assistants. Instruments are abundant and good, otherwise all is primitive. A single cold-water faucet and bowl at one side, a small rubber tube depending from the rusty two-light gas-burners furnishes a stream of water. Hot water is brought in a pitcher. There is no possibility of making an examination of blood or a search for poison in a suspected case. One table three feet long holds scales, sponges and instruments and there are three or four small cupboards. There is room for nothing more. And this in Paris! The present building is so situated that it cannot be enlarged and the insufficiency of space and inconvenience steadily increase.

For years Professor Brouardel has tried in vain to move the authorities to furnish more room in a building adapted to his work of instruction. Friends of his and of the course have written scathing pamphlets. Nothing which could arouse those in power to a proper conception of the great need of enlargement has been left undone and untried. A place for a new morgue has been chosen and, in association with architects, Professor Brouardel has devoted much time to the plans of a new building. The place chosen is nearly opposite the present morgue and is now occupied by a clump of old buildings which will be removed. It is central. In fact the address would be nearly the same as that of the morgue of to-day. The new structure would be close by the Palais de Justice.

How needful this change is may be seen in remarks of Professor Brouardel, who, in a report advising reconstruction, says: "For after making an autopsy at the morgue (the present one) the necessary microscopical, physiological and toxicological examinations are made elsewhere, some at the Préfecture, some at the old College Rollin; and we end in uncertainty. Multiplied transportations of bottles, of parts of the body, represent isolated work without direction; and, after inco-ordinated efforts, one finds it impossible to demonstrate that there is a culprit and, graver still, that only the innocent have been suspected. Moreover, these displacements (of suspected material) tend inevitably, on the part of the experts, to delays which, on account of those who are incarcerated under suspicion, are much to be regretted."

These unceasing endeavors to bring about the needed change have been strenuously pushed, and even though plans for a new building have been drawn and accepted, even though the new site has been found, nothing has been done by the authorities. Indeed, Professor Brouardel wrote me, "Things remain as they were fifteen years ago," and, "Nothing at present gives hope that for a long time to come will there be any modification."

No visitor who has made himself familiar with the medico-legal course at the morgue and who realizes its unspeakable advantages to students, to science, justice, education, as well as to the reputation of Paris and of France, fails to feel sad and indignant at this indolent, ignorant neglect of the requests and suggestions of a man so invaluable and deserving as is Brouardel, not to mention his collaborateurs. The course itself being not only unique but worthy of the highest admiration should be a source of pride to every intelligent Parisian. The dulness of those whose duty it is and who possess the power to permit erection of a new and spacious morgue is beyond understanding. Imagine such a course and conceive of its confinement to a mere den where space for even one microscope is lacking! Think of the wealth of specimens afforded by one thousand annual autopsies and only a couple of four-foot shelves to serve for collection, and you will easily comprehend the depression which present conditions must cause Professor Brouardel.

Scientific researches are manifold, for the Préfecture of Police has granted localities where vast laboratories are at the service of the experts who teach at the morgue and where students are allowed to be present during the examination of solids and liquids supplied by the body whose autopsy they have witnessed; nevertheless, all these disturbances encroach wofully upon the perfection of medico-legal instruction.

Returning, after this digression, to the autopsy chamber, we find its crowd of students and physicians (for men of all ages are there) sitting on the floor, on a fence, or standing, in any case in discomfort. Nearly every man present during the entire hour smokes cigarette, cigar or pipe. Nearly every man wears his hat, else how would he dispose of it? It is Brouardel's day. The room is jammed. Tobacco smoke and autopsy smells are but partially driven away through the open roof scuttles, which if the day be cold are shut. The atmosphere is far from agreeable. The men are chatting, reading medical journals, studying. Suddenly through a side door enters Professor Brouardel in white apron and skull cap, finishing his cigar, the butt of which he takes from its holder, which he returns to its case some five minutes after his talk begins. The audience receives him by a clapping of the hands, which is repeated at his departure. He is accompanied by clerk and assistant who makes the autopsy, the rougher work being done by the servant of the morgue, whose hands are clever in the use of the knife. The body to be examined is either already upon the table, or is then brought into the room in a pine box on wheels the lugubrious sounds of which echo through the room.

(To be continued.)

RECORD OF MORTALITY

FOR THE WEEK ENDING SATURDAY, APRIL 30, 1898.

Cities.	Estimated population.	Reported deaths in each.	Deaths under five years.	Percentage of deaths from					
				Infectious diseases.	Acute lung diseases.	Diarrheal diseases.	Whooping cough.	Diphtheria and croup.	
New York	3,438,899	1240	441	12.32	19.20	1.52	1.92	3.36	
Chicago	1,619,226	—	—	—	—	—	—	—	
Philadelphia	1,214,256	—	—	—	—	—	—	—	
Brooklyn	1,160,000	—	—	—	—	—	—	—	
St. Louis	570,000	—	—	—	—	—	—	—	
Baltimore	550,000	169	56	12.00	9.00	2.40	.80	3.00	
Boston	517,732	198	53	6.89	15.30	—	.53	2.65	
Cincinnati	405,000	136	—	2.22	17.02	—	.74	.74	
Cleveland	350,000	—	—	—	—	—	—	—	
Pittsburg	225,000	95	33	14.84	13.78	5.30	2.12	3.18	
Washington	277,000	90	23	12.31	8.58	1.11	1.11	1.11	
Milwaukee	275,000	—	—	—	—	—	—	—	
Worcester	105,050	30	19	15.78	31.56	—	—	—	
Nashville	87,754	35	11	8.58	19.72	—	—	—	
Fall River	95,919	—	—	—	—	—	—	—	
Lowell	87,198	38	10	2.63	15.78	—	—	—	
Cambridge	86,812	18	3	16.66	11.11	—	5.55	5.55	
Lynn	65,229	14	6	—	21.42	—	—	—	
Charleston	65,165	—	—	—	—	—	—	—	
New Bedford	62,416	14	5	—	7.14	—	—	—	
Lawrence	55,510	23	—	—	8.70	—	—	—	
Springfield	54,790	7	2	14.28	14.28	—	14.28	—	
Holyoke	42,364	8	2	25.00	25.00	—	—	12.50	
Portland	40,000	—	—	—	—	—	—	—	
Salem	36,082	5	0	—	20.00	—	—	—	
Brockton	35,853	9	3	—	33.33	—	—	—	
Malden	32,894	16	1	12.50	6.25	6.25	—	6.25	
Chelsea	32,716	12	0	16.66	25.00	8.33	—	8.33	
Haverhill	31,406	9	4	—	11.11	—	—	—	
Gloucester	29,775	—	—	—	—	—	—	—	
Newton	28,990	—	—	—	—	—	—	—	
Fitchburg	28,392	—	—	—	—	—	—	—	
Taunton	27,812	10	3	—	10.00	—	—	—	
Quincy	22,582	5	2	20.00	20.00	20.00	—	—	
Pittsfield	21,891	—	—	—	—	—	—	—	
Waltham	21,812	3	2	—	—	—	—	—	
Everett	21,675	6	3	—	16.66	—	—	—	
Northampton	17,448	—	—	—	—	—	—	—	
Newburyport	14,794	5	1	—	—	—	—	—	
Amesbury	10,990	—	—	—	—	—	—	—	

Deaths reported 2,285; under five years of age 695; principal infectious diseases (small-pox, measles, diphtheria and croup, cerebro-spinal meningitis, diarrheal diseases, whooping-cough,

erysipelas and fevers 245, acute lung diseases 396, consumption 288, diphtheria and croup 60, whooping-cough 36, diarrheal diseases 32, cerebro-spinal meningitis 29, scarlet fever 27, measles 24, typhoid fever 21, erysipelas 6.

From cerebro-spinal meningitis New York 13, Washington 6, Baltimore 4, Boston and Providence 2 each, Worcester and Holyoke 1 each. From scarlet fever New York 20, Baltimore 3, Boston, Washington, Melrose and Westfield 1 each. From measles New York 21, Baltimore, Washington and Melrose 1 each. From typhoid fever New York 9, Pittsburg 4, Boston 3, Providence 2, Lowell and Cambridge 1 each.

In the thirty-three greater towns of England and Wales, with an estimated population of 11,218,378, for the week ending April 23d, the death-rate was 18.1. Deaths reported 3,906; measles 211, whooping-cough 121, diphtheria 48, diarrhea 32, fever 31, scarlet fever 28, small-pox (Sunderland) 1.

The death-rates ranged from 8.4 in Croydon to 24.6 in Sunderland; Birmingham 18.9, Bradford 20.5, Bristol 16.6, Cardiff 14.4, Gateshead 18.6, Hull 15.7, Leeds 20.5, Leicester 18.5, Liverpool 22.7, London 17.9, Manchester 20.2, Newcastle-on-Tyne 23.6, Nottingham 17.9, Portsmouth 10.9, Salford 21.0, Sheffield 19.5.

METEOROLOGICAL RECORD

For the week ending April 30th, in Boston, according to observations furnished by Sergeant J. W. Smith, of the United States Signal Corps:—

Date.	Baro- meter	Thermom- eter.			Relative humidity.		Direction of wind.		Velocity of wind.		We'th'r. •		Rainfall in inches.
	Daily mean.	Daily mean.	Maximum.	Minimum.	8.00 A. M.	8.00 P. M.	Daily mean.	8.00 A. M.	8.00 P. M.	8.00 A. M.	8.00 P. M.		
S...24	29.77	46	44	44	98	100	99	N.E.	N.	13	9	R. R.	1.94
M...25	29.94	41	44	38	91	88	90	N.E.	N.E.	12	15	O. C.	.64
T...26	30.20	40	43	36	88	88	87	N.	N.E.	12	12	O. O.	.06
W...27	30.32	38	43	34	74	75	74	N.E.	N.E.	15	21	O. F.	—
T...28	30.01	38	40	35	81	100	90	N.E.	N.E.	34	25	O. R.	.79
F...29	29.70	40	43	38	95	100	98	N.E.	N.W.	22	8	R. R.	.40
S...30	29.88	54	66	43	73	66	69	N.W.	N.W.	15	12	C. C.	—

* O., cloudy; C., clear; F., fair; O., fog; H., hazy; S., smoky; R., rain; T., threaten-
ing; N., snow. † Indicates trace of rainfall. — Mean for week.

OFFICIAL LIST OF CHANGES IN THE STATIONS AND DUTIES OF OFFICERS SERVING IN THE MEDICAL DEPARTMENT, U. S. ARMY, FROM APRIL 30, 1898, TO MAY 6, 1898.

Acting Assistant Surgeon H. W. DANFORTH, U. S. Army, will proceed from Washington, D. C., to Tampa, Fla., and report in person to the commanding general of the troops at that place for duty.

MAJOR LOUIS BRECHEMIN, surgeon, is relieved from duty at Fort Sherman, Idaho, and ordered to Vancouver Barracks, Wash., for duty, relieving CAPTAIN FREDERICK P. REYNOLDS, assistant surgeon.

CAPTAIN REYNOLDS, on being thus relieved, will repair to Washington, D. C., without delay and report in person to the Surgeon-General of the Army, for assignment to duty.

Acting Assistant Surgeons JOHN GUITERAS and W. W. CALHOUN, U. S. Army, will proceed from Washington, D. C., to Tampa, Fla., and report in person for duty to the commanding general of the U. S. troops at that place.

CAPTAIN CHARLES WILLCOX, assistant surgeon, is relieved from duty at Fort Bliss, Tex., and ordered to report in person to the commanding general of troops in the field at Mobile, Ala.

MAJOR WILLIAM B. DAVIS, surgeon, is relieved from duty with the 19th Infantry at Mobile, Ala., and ordered to Fort Myer, Va., for temporary duty.

FIRST-LIEUT. WILLIAM E. RICHARDS, assistant surgeon, is relieved from duty at Fort Apache, Ariz., to take effect upon the arrival at that post of CAPTAIN EDWARD EVERTS, assistant surgeon, and will report in person to MAJOR-GENERAL JOHN R. BROOKS, commanding Camp George H. Thomas, Chickamauga, National Park, for duty with troops in the field.

Acting Assistant Surgeon FRANCIS LIEBER, U. S. Army, will proceed from this city, Washington, D. C., to Fort Clinch, Ferdinand, Fla., and report in person to the commanding officer of that post for duty.

FIRST-LIEUT. JAMES S. WILSON, assistant surgeon, will be relieved from duty at Fort Caswell, N. C., upon the arrival at that post of Acting Assistant Surgeon FRANK ROBERTS, and

will report in person for duty to the commanding general of the troops in the field at Chickamauga, National Park.

COLONEL CHARLES R. GREENLEAF, assistant surgeon-general, having reported in person to the Surgeon-General of the Army, the Secretary of War directs that he report in person to the Major-General commanding the Army, for duty on his staff as chief surgeon of the troops in the field.

CAPTAIN EDWARD C. CARTER, assistant surgeon, having reported in person to the Surgeon-General of the Army, is assigned to duty as assistant to the attending surgeon, Washington, D. C.

MAJOR ALFRED C. GIRARD, surgeon, having reported to the Surgeon-General of the Army, will proceed to West Point, N. Y., and report in person to the superintendent of the U. S. Military Academy, for temporary duty at that post.

MAJOR GEORGE H. TORNEY, surgeon, is relieved from duty at the U. S. Military Academy, West Point, N. Y., to take effect upon the arrival at that post of MAJOR GIRARD, and will proceed to New York City and take charge of the hospital ship "Vigilantia," under detailed instructions from the surgeon-general.

CIRCULAR OF NAVY DEPARTMENT.

BUREAU OF MEDICINE AND SURGERY,
WASHINGTON, D. C., May 4, 1898.

GENTLEMEN:—The Bureau very much regrets that it is obliged to discontinue sending the weekly list of changes in the Medical Corps of the Navy until such time as there is a material decrease in the amount of work taxing its limited force.

The same data can be obtained from the *Army and Navy Journal* published in New York, or from the *Army and Navy Register* published in this city. Both of them are weekly publications, and it is hoped that you will be able to continue printing the list from that source.

Respectfully yours,

W. K. VAN REYPER, Surgeon-General, U. S. Navy.

SOCIETY NOTICES.

BOSTON SOCIETY FOR MEDICAL IMPROVEMENT.—A regular meeting of the Society will be held at the Medical Library, 19 Boylston Place, on Monday evening, May 16th, at 8 o'clock.

Dr. J. Collins Warren will read a paper on "The Surgery of Gastric Ulcer, with Report of a Case of Gastrolysis."

Dr. J. H. Wright: "Report of a Case of Mycetoma (Madura Foot)," with lantern slides.

JAMES G. MUMFORD, M.D., Secretary, 197 Beacon St.

SUFFOLK DISTRICT MEDICAL SOCIETY.—The Section for Clinical Medicine, Pathology and Hygiene. There will be a meeting of the Society at 19 Boylston Place, Wednesday, May 18, 1898, at 8 p. m.

At 8 p. m. Short communications by Drs. Badger, Curry and Greenleaf.

At 8.30 p. m. Paper by Dr. Morton Prince: "The Pathology, Genesis and Development of some of the more Important Symptoms in Traumatic Hysteria and Neurasthenia."

E. W. TAYLOR, M.D., Secretary, 416 Marlborough St.

NEW HAMPSHIRE MEDICAL SOCIETY.—The one hundred and seventh anniversary meeting will be held on Thursday and Friday, May 26 and 27, 1898, in the new G. A. R. Hall, entrance Pleasant Street, Concord, N. H. The officers of the Society are: President, Moses C. Lathrop, M.D., Dover; Vice-President, George H. Saltmarsh, M.D., Lakeport; Treasurer, M. H. Felt, M.D., Hillsborough Bridge; Secretary, Granville P. Conn, M.D., Concord.

Alumni Meeting.—The annual meeting of the Alumni of Dartmouth Medical College will be held at the Eagle Hotel, May 26th, at 5.30 o'clock p. m., and will be followed by a banquet. Circular announcement will be made to the Alumni by Prof. W. T. Smith, Secretary.

MASSACHUSETTS MEDICAL SOCIETY.—One hundred and seventeenth anniversary. The annual meeting will be held at 9 o'clock a. m., Wednesday, June 8, 1898, in the building of the Massachusetts Charitable Mechanic Association, on Huntington Avenue, Boston.

Meetings of sections will be held in the same building, on the preceding day, Tuesday, June 7th, at 2 o'clock p. m. The Shattuck Lecture will be given at 8 o'clock, Tuesday evening, in the same building, after which a reception will be held by the Society.

FRANCIS W. GOSS, M.D., Recording Secretary.

THE AMERICAN ORTHOPEDIC ASSOCIATION will meet at Boston, Mass., May 17, 18 and 19, 1898. The programme includes morning sessions at the rooms of Boston Society for Natural History, and visits to the various hospitals of the city and to the Harvard Medical School. The programme offers a large number of papers of interest.

Address.

PATHOLOGY IN ITS RELATION TO ORTHOPEDIC SURGERY.¹

BY E. W. LOVETT, M.D., BOSTON.

It is my pleasure and privilege to bid you welcome to this the twelfth annual meeting of our Association. Many of you will recall the questions which arose in 1887 as to the advisability of forming this Association and the opposition which it met in its early days. Time enough has elapsed since then for us to set a critical estimate on its work and its position. The work, to be sure, is our own, and for that reason we are not perhaps the best judges of it; but if we err on the side of being too critical in our attempt to estimate it, no harm can result from the effort. The position of the Association in the medical world speaks for itself. The time is past when any vindication is needed either of the American Orthopedic Association or of American orthopedic surgery.

Twenty-five years ago the first chair of orthopedic surgery was founded in Bellevue Medical College, and was filled by Dr. Lewis A. Sayre. To-day instruction in orthopedic surgery is announced in the catalogue of at least forty-two of our American medical schools, embracing the prominent ones in Boston, New York and Philadelphia, as well as others in the South and West. Instruction in orthopedic surgery is given in eleven of our largest cities by twenty-three members of this Association, yet there are some prominent medical schools in which no special instruction is announced in orthopedic surgery to which I invite your attention. Some of these are as follows: Johns Hopkins University (Baltimore), University of Maryland, University of Vermont, University of Michigan, Tulane University.

It should be our effort both by our personal endeavor and by the character of our work to bring it about that these medical schools shall find necessary such an addition to their course of instruction.

This Association has proved not only a bond of union but a stimulus to all of us. The ten volumes of its "Transactions" constitute modern American orthopedic literature. All this achievement brings with it responsibility; and we stand as an organization to-day the custodians of the future of orthopedic surgery in America, pledged by our past work to do in the future our very best. We cannot escape the trust; it is ours by right. It is not a responsibility with which we can deal lightly. The situation demands our most careful and thoughtful consideration. If there are respects in which our work can be extended, we must recognize it. If the surrounding conditions have changed, we must realize the fact and adapt ourselves to them.

In looking over our volumes of "Transactions" one finds papers dealing with the clinical aspect and mechanical and operative treatment of almost every condition known in orthopedic surgery. The ground is thoroughly, practically and scientifically covered by your work. This fact and the comparative scarcity of papers on the experimental and pathological side of the subjects in these "Transactions" leads me to suggest to you, what you already appreciate, that there lies ready a field of work of equal importance, which is in need of cultivation. In this matter the conditions

have changed of late years so far as we ourselves are concerned. In the early years of our Association our first duty was very naturally to go over and investigate the treatment and clinical aspect of the common affections that we treat. But now that this has been so thoroughly done it seems to me that we may pause to ask, if, in the natural sequence of events, there is not a new line to be followed in much of our future work following the lead set us by some of our members in the last two or three years.

Certain general considerations bear on this subject:

General surgery and medicine are advancing rapidly on new lines in the later years. A pathological basis is being sought for, and in certain directions is being established; bacteriology has modified all things; serum therapy has arisen, and has accomplished much. A pathological laboratory is a part of the modern hospital outfit. The work in greatest demand is no longer the elaboration of symptoms and the collection of cases, but the work which seeks rather for the causes of symptoms and for the scientific explanation of the conditions found.

The symptoms of malaria are of interest chiefly when interpreted as phases of the life history of the organisms that cause them. Here, for example, study is directed not to the symptoms but to what they mean.

Anemia is no longer discussed in the light of its symptoms, but in the more intelligent terms of a blood-count. Peritonitis is not any longer spoken of as a vague idiopathic condition so much as the result of certain individual processes which are carefully sought for at autopsy, so that another time the symptoms may be more accurately interpreted in pathological terms, in time, if possible, for successful surgical intervention.

The practical medical world is seeking for causes more every year in the autopsy-room and in the laboratory. American orthopedic surgery cannot escape, nor has it escaped, this tendency; we, too, must progress by an elaboration of the pathological basis, and this line of work naturally falls on us.

When most of us were receiving our medical education pathology was not particularly prominent, and we had comparatively poor facilities for fitting ourselves in this branch. When modern orthopedic surgery received its impetus from Sayre and Taylor, there was little or no pathology of joint disease or bone tuberculosis, and they bent their energies to the mechanical and practical side; they shaped American orthopedic surgery, and it still feels their impetus and has followed their lead in great part. But the conditions have changed; a pathology has been elaborated, and its relative importance is vastly greater. To elaborate the real basis of our specialty—of any specialty—is one of the lines on which the best progress is made; without a pathological basis the best scientific work cannot be accomplished.

As orthopedic surgeons where our knowledge of underlying conditions is vague, we disagree as to therapeutic measures, and our results are less certain than where we know accurately the pathological conditions with which we are dealing. As an example of the class where our pathological knowledge is wanting in accuracy and detail, take hip disease. We know, and we have had formulated for us, the general process going on in the hip-joint; but what we know came rather from the work of König, Volkmann, Krause,

¹ President's Address delivered before the American Orthopedic Association, Boston, Mass., May 17, 1898.

Lannelongue, G. A. Wright, and others, than from our own pens. An immense number of cases of hip disease must yearly come under the care of members of this Association, yet no important addition to our knowledge of the pathology of hip disease has been made since Gibney's book appeared fourteen years ago. We have not yet learned to put together clinical phenomena and pathological findings; we do not yet know, for example, what acute malpositions of the hip mean in pathological language — why one hip should be everted and another flexed. Of the symptoms and cause of acetabular hip disease we know next to nothing. Instances have occurred where, in cases severe enough to demand excision, the head of the femur has been removed and the acetabulum left; and pathological examination has shown that the head of the femur was never the cause of the disease, but that it was acetabular from the first. Certain surgeons assert their ability to diagnose acetabular hip disease, but this ability is disclaimed by those whose opinion has most weight with us. We lack here, as we lack at many points in orthopedic surgery, that exact pathological knowledge which would interpret for us clinical phenomena — our indications for excision of the hip are hazy, chiefly I think because we do not know just what certain symptoms mean in pathological language.

As an example of the class of subjects where our pathological knowledge is accurate, turn for a moment to one of the most satisfactory operations in orthopedic surgery, the correction of severe club-foot. We are fairly well agreed as to indications for operation; we differ somewhat in details, but in general our procedure is much the same; our results are admirable, almost uniformly so. But here we know with just what we are dealing; the bony changes are formulated. Any book on orthopedic surgery figures the bones; the clinical phenomena fit with the pathological changes. Precision and success mark our work under these conditions.

There are few problems in surgery or medicine more interesting or more in need of investigation than those which lie at the root of many of those conditions which as orthopedic surgeons we constantly meet. Some of these are conditions which, in certain aspects, attract the attention of the general surgeon or the physician or the neurologist; others depend almost wholly upon ourselves for their elucidation. Of these conditions which demand our investigation it seems to me that first comes the need of better pathological knowledge of inflamed, irritated and neurasthenic joints, especially joints affected by rheumatoid arthritis and syphilis. Joint tuberculosis comes next in its demand for the further search as to its methods of invasion and extension, and especially for an exact pathological interpretation of common symptoms.

Of the real pathological condition which causes flat-foot, in its early stages, we know very little, and with regard to static deformities there is very much to be done in the way of acquiring precise knowledge.

We know next to nothing as to the determination of the causation of the deformities in rickets and their prevention, and very little as to the real cause of the bony changes in rickets. Infantile paralysis stands in need of investigation as to its possibly infectious character and its etiological cause.

There is no need of the formulation of further de-

fects in our knowledge; you know them as well as I. The present spirit of progress in medicine and surgery demands exact pathological knowledge and the scientific demonstration that certain symptoms are associated with certain lesions. That must form part of our work.

If I have stated the case fairly, and I have tried to be over-critical in speaking of our own work, there is a chance for us to contribute most valuably to orthopedic surgery, not only in the same lines as before, but particularly by the development of lines of work seeking for the causes and pathology of the affections that we treat.

It is obvious that we cannot, as a rule, educate ourselves at this date into being expert pathologists or bacteriologists. We have, as a rule, neither the time nor the opportunity; we have other demands upon our time, and we should not do it well; we could not compete in technique or thoroughness with the better class of young men leaving our medical schools every year. To educate ourselves to a point where our opinion would be of value, for instance, in the examination of a section of tuberculous bone, means months or years of work. It presupposes a training in modern histology and an understanding of degenerative, inflammatory and reparative processes as a preliminary to approaching the study of bone tuberculosis. Where we are so circumstanced that we can acquire this training or where some of you already have it, the road is clear. But with most of us the detail must be done by other hands.

Having once determined that our operative material, at least, shall be used for pathological purposes, it is not generally hard to find trained assistance in bacteriology and pathology. Young men are at hand almost everywhere, and never was there a better opportunity for them to do creditable work than in these fields of which I have been speaking. We must know enough pathology to direct the work and formulate the lines of investigation, as well as to set a value on the results.

It seems to me, next, that we should scrutinize most closely applicants for membership in this Association, and should insist on a basis of scientific training and acquirement. Realizing that it is not in the power of many of us to do this sort of work in the laboratory unaided, we should select from among our applicants at least some who, by their scientific training and work, are likely to be contributors in this regard to American orthopedic surgery. All this presupposes, however, on our part united action and a certain change of attitude. American orthopedic surgery stands pre-eminent on its mechanical and practical side. My plea to-day is for a working out of a more exact scientific basis than we now have, which can only come from accurate etiological and pathological knowledge. Elaboration of this line of work would, it seems to me, make us not only contributors in a wider sense but dignify and broaden the speciality.

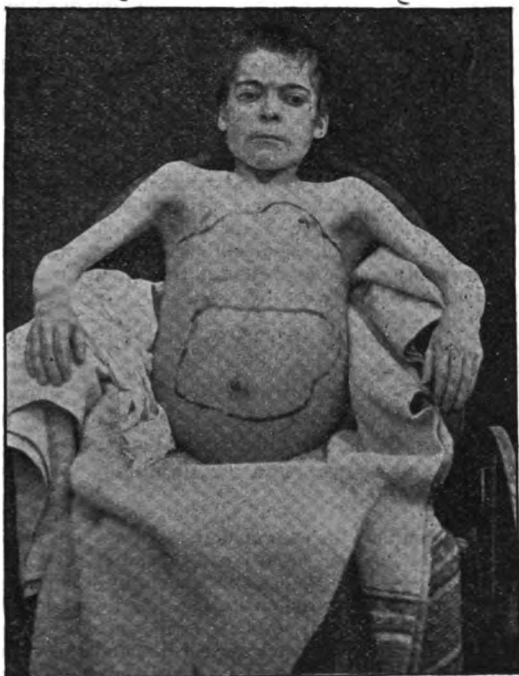
DR. DALAND HONORED IN RUSSIA. — Dr. Judson Daland has received official notification of his recent election as an honorary member of the Therapeutic Society of the University of Moscow, Russia. We believe that Dr. Daland is the only physician in this country who holds this honor, and we beg to offer our congratulations.

Original Articles.

OBLITERATIVE PERICARDITIS A CAUSE OF HEPATIC ENLARGEMENT AND ASCITES, WITH REPORT OF A CASE.¹

BY RICHARD G. CABOT, M.D.,
Physician to Out-Patients at the Massachusetts General Hospital.

E. H., a boy of eighteen, entered the Massachusetts General Hospital, February 2, 1893, in the service of Dr. F. C. Shattuck, by whose kindness I am permitted to report the case. There was nothing significant in the boy's family history. He had measles at seven, and says he has never been as well since. Six years ago a physician told him that his liver was enlarged and four years ago he noticed swelling of his belly.



It reached its present size (see illustrations) in a few weeks; there has been but little change in it since. Occasionally his feet have been swelled for short periods.

All these symptoms have troubled him but little. The reason for his coming to the hospital was cough, which had troubled him on and off for three years, but worse of late. Cough was usually dry. Appetite, digestion, bowels and sleep were all right, and until very lately he had worked in his father's store.

Physical examination showed a boy very backward in his development, which corresponded to that of most boys of twelve. He was considerably emaciated. The great prominence of the belly (see illustrations) was due partly to enlargement of the liver, which extended a hand's breadth below the navel and reached to the fourth rib above; partly to a large accumulation of fluid which made the belly flat on percussion except over a small area situated about the navel when he lay on his back, and shifting to whichever side was uppermost when he turned over. The surface of the liver

was apparently smooth, its edge easily felt. No glands, nodules or areas of increased resistance were palpable elsewhere. There was no tenderness anywhere. No enlargement of the spleen was demonstrated.

There was evidence of considerable fluid in the left chest—dulness, and absent breathing and voice-sounds up to the third rib in front and midscapula behind. This made it impossible accurately to determine the size of the heart, especially as the apex beat could be neither seen nor felt. The apex sounds were loudest in the fourth interspace, one-half inch inside the nipple—the heart not being pushed to the right by the pleuritic effusion, so far as could be determined. The sounds were feeble but clear, the pulmonic second sound somewhat accented.



The left lung was apparently compressed by the fluid in the pleura; for there was bronchial breathing and increased voice-sounds over that part of the chest not occupied by fluid. Whether there was any fluid in the right chest was hard to determine, on account of the (apparent) enlargement of the liver upwards. Over the upper half of this lung the breathing was puerile, with many medium, moist râles—signs interpreted as compensatory emphysema and edema.

There was no edema of the legs.

The urine showed the characteristics of renal congestion.

The boy could not breathe except in a sitting position; and in this position he sat, uncomplaining, either in a chair or in bed until his death on March 29th, eight weeks from the time of entering the hospital. He had some diarrhea—three to five loose movements daily—during the whole of this period despite various efforts to check the increased peristalsis. Cough was at times very troublesome and never absent. He often spat up four or five ounces of nearly pure serous fluid during the night.

The abdomen was tapped three times and the left

¹ Read before the Boston Society for Medical Improvement, January 24, 1893.

chest once. About four quarts were obtained each time from the belly and two from the chest. The fluid was about the same at all the tapplings—approximately 1.008 in gravity, with a relatively small percentage of albumin, evidently a transudation.

An interesting feature of the case was the occurrence of transient swellings in the parotid region lasting three to eight days. Such swellings have been noticed in connection with a variety of abdominal diseases.

Towards the end of life his breathing grew quicker and shallower, and the evidences of pulmonary edema increased. Pain was absent throughout. The treatment was purely palliative and expectant. Death occurred apparently from pulmonary edema and exhaustion.

The *diagnosis* at the time of death was entirely uncertain. The absence of any history of alcohol and of any history or lesions of syphilis, congenital or acquired, made cirrhosis of the liver unlikely. There did not appear to be sufficient evidence of cardiac or renal disease to explain the signs. Tubercular peritonitis seemed unlikely in view of the nature of the fluid obtained by tapping and the absence of nodules or masses in the abdomen after tapping. The sputa was repeatedly examined for tubercle bacilli with negative results. The possibility of a new growth in or near the liver and pressing on the portal radicles or otherwise obstructing the portal circulation could not be excluded, and was considered on the whole the most likely diagnosis.

Autopsy, by Dr. W. F. Whitney, showed the following:

Heart of normal size; muscular substance presents nothing abnormal.

Pericardium entirely obliterated by firm fibrous adhesions; in the upper part a small, cheesy nodule.

Left lung retracted against chest wall into a mass the size of the fist and covered with dense fibrous adhesions. On section airless, dark red, looking like a spleen.

Right lung also somewhat compressed. Considerable fluid in both pleural cavities.

Liver greatly enlarged; nutmeg section surface

Kidneys dark red in color, with evidence of abundant blood.

Diaphragmatic muscle fibres in a state of marked fatty degeneration.

Diagnosis: Chronic obliterative pericarditis, probably of tubercular origin; chronic pleurisy, with double hydrothorax, and splenification of the left lung; chronic passive congestion of liver and kidneys.

Pick² reports three similar cases.

CASE I. Waiter, forty-seven. June, 1889, pericarditis. March, 1890, left pleural effusion; enlarged liver, ascites. Abdomen tapped six times in 1890 to 1892. Heart negative except for faintness of the sounds. *Diagnosis*, cirrhosis of the liver. Death, November, 1892, three and a half years after his pericarditis. *Autopsy*: Obliterative pericarditis; left lung compressed against chest wall and splenified; pleural cavity obliterated (exactly as in Dr. Shattuck's case); nutmeg liver, showing microscopically signs of chronic passive congestion with secondary increase of connective tissue; no evidence of primary cirrhosis.

CASE II. Man of twenty-six. Swelling of abdomen for eight years, supposed to be obesity. In 1888 began treatment for this at the Marienbäder, but the size of the belly increased and cyanosis and dyspnea supervened, so that the treatment was hastily abandoned. Veins of upper and lower extremities dilated; liver enlarged; ascites. Tapped repeatedly. Heart not enlarged; no murmur. In

the next three years increasing dyspnea, ascites, edema and hepatic enlargement. The diagnosis was at first cirrhosis of the liver, later tubercular peritonitis. A few months before death, which occurred in December, 1892 (twelve years from the first enlargement of the abdomen), a paradoxical pulse and an apex-presystolic murmur were noted; yet at the time of death the diagnosis rested: "cirrhosis of the liver." *Autopsy* showed obliterative pericarditis, with extensive calcification of the exudate; liver of chronic stasis; double hydrothorax.

Both these patients were moderate drinkers—not excessive—so that the etiological suggestion was equivocal. In both something closely resembling a primary cirrhosis was finally established by the prolonged stasis and irritation in the liver due to the insufficient cardiac power.

In the third case, Pick was enabled by his experience in the other two, to make the diagnosis during life.

CASE III. A man of twenty-four had complained for two years of dyspnea, palpitation and swelling of the abdomen. Seen in February, 1894, with considerable enlargement of the liver, ascites, edema of the scrotum and feet. Heart-sounds clear; apex beat not to be seen or felt. *Diagnosis* at first, hepatic cirrhosis. Repeated tapplings necessary. In 1895 occasional friction sounds over the heart suggested the diagnosis of pericarditis. Death, September, 1895. *Autopsy*: Total obliteration of the pericardial sac, with calcification, so that the heart was almost cased in stone; double hydrothorax; secondary connective tissue overgrowth in liver.

Pick also mentions that he has seen two other cases not yet fully reported.

Most text-books and works on the heart make no mention of such a connection between chronic pericarditis and secondary interstitial hepatitis with enlargement and ascites, but a certain number of isolated cases are recorded.

Weiss³ mentions the case of a girl of fourteen with enlarged liver and spleen, slight jaundice, and marked ascites, but without edema of the legs, in whom physical examination showed nothing wrong with the heart, and in whom the diagnosis of cirrhosis of the liver was made. *Autopsy* showed a chronic obliterative pericarditis and the remains of old pleurisy and peritonitis. The liver was enlarged and firm, but not cirrhotic to the naked eye. Chronic renal congestion was present.

Wagner⁴ records a case of marked ascites in a man of thirty-five—not a hard drinker and without venereal history. The liver was enlarged. Heart-sounds feeble but clear. Tapping required four times in six months. The diagnosis made was: "Cirrhosis (?)" (*vielleicht Lebercirrhose*). *Autopsy*: Chronic tubercular pericarditis (fibrinopurulent), miliary tuberculosis. No evidence of tubercular peritonitis. Both pleural cavities obliterated. Pigmented scars and small cheesy patches in the lungs. Liver reaching a hand's breadth below the ribs; "nutmeg" section-surface, with a few fresh miliary tubercles. No cirrhosis, macroscopic or microscopic. Here the obstructed pulmonary circulation doubtless contributed largely to the weakness of the heart.

Liebemeister describes a case of chronic pericarditis with dilatation of both ventricles, in which edema of the extremities accompanied the enlargement of the liver and the ascites, but in which the edema of the extremities disappeared under the use of digitalis, while the ascites persisted.

Weinberg⁵ narrates two cases of tubercular pericarditis with obliteration, and large ascites, one tapped fifteen times. In both the liver was greatly enlarged. In one an explor-

² Wien. med. Jahrb., 1876, p. 1.

⁴ Deutsch. Archiv. f. klin. Med., vol. xxxiv, p. 536, 1894.

⁵ Munch. med. Woch., 1894, Nos. 46, 47.

³ Zeit. f. klin. Med., vol. xxix, 1896.

atory laparotomy was done, and the surface of the liver is noted to be "not quite smooth."

Most⁶ has reported two and Rumpf⁷ one similar case; and Unverricht,⁸ in a review of Most's article, speaks of the association of obliterative pericarditis and ascites as not uncommon.

Neusser⁹ mentions a case of obliterative pericarditis with ascites and edema, the ascites preceding the edema by some time and leading to a diagnosis of hepatic cirrhosis, which autopsy did not confirm.

V. Schrötter¹⁰ mentions a similar case in a young girl.

Rosenbach¹¹ mentions the case of a boy of ten with a puzzling enlargement of the liver and ascites, without any edema elsewhere, in whom at autopsy the only lesions were an obliterative pericarditis, with a nutmeg liver and perihepatitis.

Cursechmann¹² refers to a woman of fifty, in whom ascites of unknown origin developed and persisted between tapings for six and one-half years. Autopsy showed obliterative pericarditis and obliterative right pleurisy with perihepatitis.

In the eighteen cases here collected the absolute latency of the pericarditis is important, but not on the whole surprising. I have watched a number of cases with Dr. F. C. Shattuck in which, during the course of a pneumonia, he was on the lookout especially for the advent of a pericarditis and examined carefully for it each day in vain; yet at the autopsy the pericarditis was found to have crept in.

The weakening of the apex impulse was the only sign present in the case of adhesive pericarditis here presented; and such weakening is in no way distinctive, but occurs in various other conditions.

The diagnosis can hardly be made from physical examination of the heart, unless systolic retraction at the apex, paradoxical pulse or a pericardial friction is present. The history of previous pericarditis and the absence of alcohol or syphilis in the antecedents might help us.

That weakness of the heart brought on by its adhesions to the pericardium should produce hepatic stasis and ascites without edema of the legs or anasarca is strange, but not at all without precedent in literature and experience. It has been repeatedly recorded in cases of valvular or parietal disease, but most frequently in adhesive pericarditis. I stated at the outset that there was little or nothing in the text-books upon the topic of my paper. This statement referred to the association of hepatic enlargement with adhesive pericarditis. That the latter often produces *ascites* is mentioned by Strümpell and by Leube in their text-books. The most acceptable explanation of this special localization of the passive congestion in the portal system is that the stasis in the liver gives rise to permanent tissue changes there, namely an increase of the stroma with contraction, over which the influence of rest and drugs has no effect. Other manifestations of passive congestion can be removed by treatment, but in the liver they are self-perpetuating and grow in a vicious circle.

Diagnosis.—Bearing in mind the possibility that any unexplained enlargement of the liver with portal congestion and ascites is due to adhesive pericarditis, we may be led to keep a daily watch upon the heart, and so happen upon some positive evidence of this

most obscure malady. This should be particularly insisted upon in cases occurring in young persons and in those where there is no evidence of excessive alcoholism, syphilis or malignant disease, or where there is a history of symptoms which sound like those of pericarditis, pneumonia or acute multiple arthritis. As most cases of chronic pericarditis are tubercular in origin, the presence of tuberculosis elsewhere in the body in connection with unexplained portal stasis should make us think of the pericardium as a possible cause for the stasis.

Prognosis.—The chief importance of correct diagnosis is that the course of cases of portal stasis due primarily to pericarditis is considerably longer, as a rule, than that of primary hepatic cirrhosis, for which they are often mistaken. The case here reported seems to have lasted at least six years; and a duration of eight to twelve years is apparently not uncommon.

Treatment is in any case simply palliative.

CONCLUSIONS.

(1) Some cases of hepatic enlargement with ascites and other evidence of portal stasis appear to be due to chronic obliterative pericarditis.

(2) Appreciation of this possibility may lead to the correct diagnosis through careful and frequent examinations of the heart, and close scrutiny of the previous history.

(3) The disease appears to be relatively frequent in persons under thirty years of age, and usually runs a course of six to twelve years, that is, a longer course than most cases of primary alcoholic cirrhosis. This fact is of importance in prognosis.

ON THE TREATMENT OF CERTAIN FORMS OF CERVICAL LYMPHADENITIS BY THE INTRODUCTION OF MEDICINAL SUBSTANCES INTO THE CRYPTS OF THE FAUCIAL TONSILS.¹

BY J. L. GOODALE, A.M., M.D.,

Assistant Physician to the Clinic for Diseases of the Throat in the Massachusetts General Hospital and in the Boston Children's Hospital.

THE following paper is intended as a preliminary communication regarding a new method of treating some forms of cervical glandular enlargements which has suggested itself to me as the logical deduction from certain clinical facts and experimental investigation.

The cervical glands, to the enlargement of which I refer, are those situated in the neighborhood of the angle of the lower jaw. It should be emphasized that the other cervical lymph-glands, such as the occipital, jugular, and submental, are here left entirely out of account.

The angular glands, to which our present consideration is limited, become enlarged, as is well known, in a variety of acute and chronic pathological processes affecting the fauces and the posterior portions of the mouth, such as, for instance, diphtheria, epithelioma of the tonsil, dental caries, etc.

In the present connection such possible causes as acute inflammation, malignant disease and dental irritation are excluded. There will, then, remain a class of angular glandular enlargements which possess particular interest and importance. These are the chronic

¹ Read before the Boston Society for Medical Improvement, January 24, 1896.

⁶ Practitioner, February, 1887.

⁷ Deutsch. Archiv. f. klin. Med., 1895, p. 272.

⁸ Fortschritte d. Med., 1887, p. 480.

⁹ Beiträge zur Leberkrankheiten, 1864, p. 19.

¹⁰ Cited from Pick, loc. cit.

¹¹ Deutsch. med. Woch., 1882, p. 601.

¹² Loc. cit., 1884, p. 564.

swellings ranging a size from barely perceptible by the finger to that of a pullet's egg, exhibiting often a tendency to central softening and evacuation of their contents. They occur most commonly in poorly nourished children, and in a large proportion of cases have been shown to be tubercular in nature.

It is to the treatment of enlarged and often tubercular angular lymphatic glands that I wish to call your attention.

Before this is done, however, a brief recapitulation of the following clinical and pathological facts is necessary:

In the first place with regard to the source of infection in the case of these glands, it has been suggested that the infection atrium was the tonsils. Experiments have shown that animals with whose food bacilli of tuberculosis were mingled, experienced a tubercular enlargement of the angular glands. Examinations of human tonsils have furthermore demonstrated bacilli of tuberculosis with comparative frequency on the free epithelial surface or in the tonsillar crypts. In a small percentage of cases, giant cells and tubercles have been found in the tonsillar tissue proper. Since it is evident that bacilli of tuberculosis once present in the lymph spaces of the tonsillar tissues would tend to be borne by the efferent lymph current to the angular glands, the inquiry arises, Is it possible for the bacilli which we know to be frequently present in the mouth to make their way through the epithelium of the tonsil into the lymph spaces of the organ?

If this penetration by the bacteria occurs, the question is next suggested whether it is not possible that medicinal substances brought into contact with the epithelium of the tonsil may also be absorbed, and thus exert their therapeutic effect upon the neighboring lymph glands? The question is, in other words, Does absorption of foreign substances exist in the tonsil?

I was led last spring into an investigation of the question of tonsillar absorption by observing the marked difference existing between the stout, compact epithelium covering the exposed free surface of the tonsil, and the delicate loose structure of that lining the crypts. This circumstance, in connection with facts of clinical observation, led me to suppose that absorption through the tonsillar mucous membrane, if it existed at all, would take place chiefly or wholly in the crypts. To determine this question, I conducted a large number of experiments, which consisted essentially in the introduction of foreign substances into the crypts of human tonsils destined for excision in the ordinary course of out-patient practice. The tonsils were excised at varying periods of time subsequent to the introduction of the foreign substances, hardened, and examined microscopically. These experiments were reported in April last to the Boston Society of the Medical Sciences, and published with plates in the *Archiv für Laryngologie*, Band vii, Heft 1, so that I will not review their details.

The conclusions afforded by the experiments were as follows:

- (1) Absorption exists normally in the tonsils, and takes place through the mucous membrane of the crypts.
- (2) The path of the absorbed substances is in the interfollicular lymph channels in the direction of the larger fibrous trabeculae at the base of the organ.
- (3) During the process of absorption, foreign sub-

stances encounter phagocytic action on the part of the polynuclear leucocytes situated in and adjoining the mucous membrane.

(4) Bacteria are normally present in the crypts, but are not usually demonstrable in the tonsillar tissue proper.

(5) In view of the preceding facts, the supposition appears possible that bacteria may be continually making their way into the tonsillar tissues, but at the moment of entering encounter conditions which terminate their existence.

The application of these facts to the subject of tubercular infection of the tonsils, and of the angular lymph-glands, leads us to conclude that a bacterial invasion from the mouth is possible. If bacilli of tuberculosis once pass the phagocytic barrier in and around the mucous membrane of the crypts, they will be carried into the interior of the tonsil, and either be there deposited or transported by the lymph stream to the angular lymph glands.

With these facts in mind it occurred to me to make use of the normal tonsillar absorption in the treatment of chronic angular lymphadenitis. It seemed reasonable to suppose that medicinal substances introduced into the crypts of the tonsils would also make their way into the angular glands along the path followed by the original irritation. If we possessed any substances capable of affecting conditions of chronic lymphadenitis, the introduction of such substances into the tonsillar crypts should be followed by an effect upon the angular glands.

An abundance of clinical material was placed in my hands at the Children's Hospital through the kindness of Dr. Langmaid and other members of the surgical staff.

In order to exclude so far as possible complicating influences, I have thus far limited this treatment to those cases in which adenoid hypertrophy was absent, and where the lymphadenitis was out of proportion to discoverable disease of the tonsil, particularly tonsillar hypertrophy. I have, therefore, excluded instances where the tonsils were so large as to permit removal by the guillotine. Cases where dental caries existed were also excluded.

Of the cases treated, some presented evidence of chronic inflammation of the tonsils with more or less dilatation of the crypts, where one would ordinarily use the galvano-cautery, the tonsil punch, or curved cutting instruments for the division of tissue between the crypts, with subsequent iodine applications.

In other cases, the tonsils exhibited no indication of chronic inflammation beyond a narrow hyperemic halo surrounding the orifice of each crypt.

The medicinal substances were introduced into the crypts by means of a blunt, pliable, silver canula attached to a hypodermic syringe. The canula, at its distal end, was so bent as to permit of its ready introduction.

With regard to the substances employed, several preparations of iodine and iodine compounds were tried, but I am not ready to report regarding their individual efficacy. In most of the cases which I shall speak of now a 10-per-cent. aqueous solution of iodine was used.

The solutions were introduced in the following way: Three or four drops of the preparation are drawn into the syringe through the canula. The patient's tonsils are brought into view. A crypt is se-

lected, and the distal end of the cannula introduced as far as it will go. The fluid is expelled into the lumen of the crypt and the cannula withdrawn. The other crypts are then filled in order. Generally, I have repeated these injections every third or fourth day.

As already stated, my object in bringing this subject to your attention is to demonstrate the possibility of reaching the angular lymph-glands in this manner by medicinal agents rather than to report cases. Most of the patients have been under treatment for but a few weeks and I shall therefore speak only of those who have been longest under my care.

CASE I. A girl, eight years of age, pale, poorly nourished. Angular gland on right had been slowly increasing in size for several months; and at the beginning of the treatment, eight weeks ago, measured two inches in length by one inch in width. The iodine introductions were followed by a steady diminution in the size of the gland, which now measures three-quarters of an inch in length by one-quarter in width. In this case the tonsils were essentially normal.

CASE II. A boy, ten years of age, in fairly good general condition, exhibited six weeks ago an angular gland on the right, measuring one by one-half inch. The swelling had been slowly coming on for several months. The iodine introductions were followed by a rapid shrinking in the size of the gland, which is now scarcely palpable.

CASE III. A girl, eight years of age, fairly well nourished. An angular gland on the left measured two and one-half by two inches, the enlargement being of about a year's duration, during which period moderate fluctuations in its size occasionally occurred. The tonsils were slightly enlarged. The iodine introductions were followed by a progressive diminution in the size of the gland. Four weeks after the beginning of treatment, the gland measured three-quarters by one-half inch. The case then disappeared from observation.

While in the majority of the cases treated a marked change in the glandular swelling occurred, in a few others, which were apparently as suitable for the application of this method, no alteration resulted. I have at present no explanation to offer for this failure to react, although it seems most probable that some infectious atrium other than the tonsils may have existed.

Clinical Department.

SECONDARY HEMORRHAGE FOLLOWING THE REMOVAL OF ADENOID VEGETATIONS.

BY WALLACE FEEBLE, M.D., CAMBRIDGE, MASS.

On March 8d I gave ether to a girl of eleven years for the removal of adenoid vegetations and removed a moderate growth of them with forceps and finger. The bleeding was not severe and stopped in a few minutes spontaneously. The child was feverish the next day, as she refused to let her mother spray the nose clean, but after I washed it out she brightened up, and on the sixth day after the operation was apparently well and breathing freely through the nose. She slept very well that night and I supposed the case was ended. She went out for a walk on the seventh day in the warm sunlight about 11 o'clock, and had not been out

more than a quarter of an hour when a sudden hemorrhage occurred, and she was carried into the house in a faint. When, twenty minutes later, I saw her the bleeding had stopped under cold syringing; but I took her to the hospital as soon as I could. At 4.20 at the hospital she had recovered from the syncope and looked bright and well. No bleeding occurred after the first, until 5.30, when with the assistance of Drs. Stevens and Swan, I plugged the posterior nares, which instantly stopped the bleeding and an injection of one-sixtieth of strychnia relieved the restlessness, which was too great to allow transfusion. She had a good night; but at 6 A. M. on the eighth day a sudden gush of blood came, and she died before the house-officer could reach her.

She gave no history of a bleeder, but I noticed that the blood on the steps from the first bleeding was only partly clotted.

In advising the removal of adenoid vegetations one generally feels that there is no danger, but in looking over the literature on the subject during the last ten years I find the following cases recorded:

1. Boy, eleven years old, operated on at 10 A. M. Hemorrhage began at 2 P. M. and continued for eight hours when it stopped spontaneously and did not recur. (Hermet.)

2. Man had a small growth removed by a Gottstein curette. Hemorrhage followed immediately so profuse as to require tamponing. (Capart.)

3. Child of nine years. Growth removed by Gottstein curette. Hemorrhage lasted several hours, causing syncope, but stopped spontaneously. (Rousseau.)

4 and 5. Woakes had two cases of troublesome immediate hemorrhage, one of which required plugging.

6. Delavan had a large clot fall into the larynx and obstruct breathing, but child recovered.

7. Delavan removed a small piece by forceps for diagnosis in another case. It was immediately followed by bleeding that lasted two days.

8. Dr. Hall reported the case of a mulatto of nineteen, where the immediate hemorrhage following the removal of adenoids required plugging.

9. Dr. Richards had a boy who bled severely after the operation, causing syncope, and the anemia lasted a long time.

10. Delavan had profuse hemorrhage in a child of four. The resulting pallor lasted a long time.

11. A man of twenty-eight had an adenoid the size of a pea near the left Eustachian tube with impairment of hearing on that side. Slight bleeding followed its removal by forceps. Some hours later hemorrhage occurred, which was not controllable by cold or very hot irrigations, but was stopped after two hours by a tampon soaked in 20-per-cent. cocaine solution left in five minutes. Hemorrhage recurred in the evening, but stopped of itself. Recurred again in the morning, when a tampon was inserted and left in thirty hours. The following night it recurred, and another plug was inserted for forty-eight hours. The resulting pallor lasted for two to three months. (Ruault.)

12. A young man of eighteen had enlarged tonsils, granular pharyngitis, and naso-pharynx filled with firm, fibrous adenoids. The tonsils were treated by ignipuncture and the adenoids removed a few at a time, by forceps. Moderate bleeding occurred at the fourth sitting. Twenty hours later it became troublesome, lasting two and a half hours, and only stopped by galvano-cautery. (Ruault.)

13. In a girl of nine and a half years there was nasal stenosis, the left tube was obstructed and left drum retracted. The growth was removed by forceps and the vault painted with alcohol and borated glycerine. There was no hemorrhage at the operation; but two hours later bleeding lasted for an hour and recurred on the next day. (Gillé.)

14. A girl of seventeen had hypertrophy of the turbinates treated by galvano-cautery, and adenoids removed by forceps, a few at a time. The second sitting was followed by slight bleeding, but the hemorrhage after the third sitting required very hot irrigations to stop it, and recurred fifteen hours later, though it finally stopped spontaneously. (Cartaz.)

15. In a girl of seventeen the growth was very hard, and the hemorrhage at the operation was considerable. It recurred two hours afterwards, and required plugging. (Scott Renner.)

16. Kahn reports that in May, 1893, in a girl of five, he removed adenoids with a Gottstein curette. The bleeding was so severe he had to plug with iodoform gauze. He found he had cut off a thin layer of bone. The bleeding did not recur.

17. Dr. Hooper had a case of fatal hemorrhage in a bleeder resulting from examining the case with the finger for diagnosis.

18. Dr. Delavan reported a case of immediate fatal bleeding in a child of four.

19. In another case of Dr. Delevan's hemorrhage occurred eight hours after operation on a child of two and a half years, and death occurred within twenty-four hours.

20. Wright reported a case of an adult, where primary hemorrhage required tamponning with nitrate of iron.

21. Newcomb reported a case of a child of three years and nine months where bleeding began four hours after operation and death resulted within sixteen hours.

True secondary hemorrhage, where the bleeding does not begin for several days when healing should be well advanced, seems to be extremely rare. I have been able to find only the following five cases besides the one I report to-night:

1. Second operated on a girl of sixteen, under chloroform, with forceps and finger. Hemorrhage was abundant at the operation, but stopped spontaneously. On the eighth day it recurred; the pulse became very weak, and syncope threatened. The pallor lasted many days.

2. A boy of fourteen had his vault filled with adenoids; tonsils not enlarged. Operated on in 1893; bleeding slight. On the fifth day when he awoke, the bed was covered with blood; but the hemorrhage stopped of itself and did not recur. (Lacourret.)

3. The Gottstein curette was used on a boy of fifteen. Bleeding at operation was so free as to require cold irrigation. Severe hemorrhage occurred on the fifth day lasting eleven hours in spite of cold irrigation. Began again on the eighth day, and was stopped only by irrigation with perchloride of iron. Recurred at 4 A. M. on the ninth day, but stopped after two hours of itself, and recurred several times that day and night; still no plug was used. Pallor lasted long, but recovery followed. (Beausoleil.)

4. In July, 1894, with a girl of nine and a half, the bleeding at the operation with a Gottstein curette was insignificant, though she had bronchitis at the time.

On the night of the fifth day there was considerable hemorrhage which was stopped by ice-cold drinks and one dose of ergotine, and did not recur. (Helsmoortel.)

5. In a girl of six, in January, 1896, enlarged tonsils were removed with a tonsillotome and a Gottstein curette employed for adenoids. The growths were very firm and there was almost no bleeding. On the night of the fifth day severe hemorrhage occurred, which was stopped by ice-cold drinks and ergot, like the last. (Helsmoortel.)

It is curious that three of these five cases are French and the other two Danish. I could find no secondary hemorrhages among the German or English reports.

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Medical Progress.

RECENT PROGRESS IN SURGERY.

BY H. L. BURRELL, M.D., AND H. W. OUSHING, M.D.

(Continued from No. 19, p. 449.)

OSTEOPLASTIC OPENING OF THE ORBITAL CAVITY FOR RESECTING THE FIRST BRANCH OF THE TRIGEMINUS.

CAHEN¹¹ describes the following method of operating for a deeper resection of the supra-orbital nerve after an unsuccessful operation for neuralgia. In many cases the ordinary operation does not secure the desired result, and both patient and doctor are unwilling to take the risk of a removal of the Gasserian ganglion; in these cases the author has employed and advises this operation, which has been successful in his hands:

At either end of the longitudinal incision employed in the ordinary operation two perpendicular incisions are carried upward, and a flap is raised of skin, periosteum and bone, which has its base upward. The remainder of the spongiosa and the tabular vitrea of the frontal bone is removed to the extent covered by the flap, the dura mater exposed, and after careful raising of the dura the orbital wall is laid bare. With a small chisel and bone forceps the wall of the orbital cavity is removed from the orbital margin backward. This exposes the nerve, which is resected as far back as possible; the wound is then packed with iodoform gauze and secondary sutures inserted. This method, the author believes, will be useful in many cases where entrance into the orbital cavity is desired.

SIXTY-ONE CASES OF PARTIAL AND COMPLETE EXCISION OF THE TONGUE.

Wheeler¹² says that out of 61 operations performed by him for malignant disease, none died from the effects of the operation save one, a male on whom he operated by Kocher's method modified; he died of asthenia. He did not tracheotomize him.

Of the 61 cases, in 29 the disease returned. Many of these operations were performed not with a view to

¹¹ Cent. f. Chir., No. 27, 1897; American Journal of the Medical Sciences, January, 1898, p. 85.

¹² Dublin Journal of Medical Sciences, April, 1897; American Journal of the Medical Sciences, August, 1897, p. 228.

cure, but merely to relieve and remove a foul, sloughing, fetid mass, and thus render existence more tolerable. Twenty-two cases he was not able to trace at all directly himself. He heard indirectly that five were healthy three or four years after operation.

Seven others had had no return of the disease, to his own personal knowledge, one to fifteen years after operation, while three had no return seven, three and two months after operation.

There is only one prognosis for unoperated lingual carcinoma—death; and a like prognosis for a large number of operated cases. That complete recovery does take place, he believes to be undoubted, as shown by his own cases.

The kindly healing of wounds in the mouth is not due to the bactericidal action of the saliva, but to the outpouring of leucocytes which its presence in these wounds always induces.

He considers it expedient to ligate the external carotid before removing the tongue, tonsils and part of the palate; but preliminary ligature of the lingual arteries in excision of the tongue, as recommended by Mirault, is not required; there is no hemorrhage from the ranine arteries to cause alarm, and, as the operation upon the tongue is frequently postponed until the wounds for deligating the lingual vessels heal, the disease in the mouth is increasing and may be infecting the patient. The author believes it is good surgery to remove the tongue first and then the diseased glands later, if it is necessary to do the operation in two stages.

The inflammation in the glands usually subsides a little, and the glands can then be more readily removed, and the connective tissue will be a guide to the lymphatic glands deeper in the neck, where the lymphatics directly communicate.

The author has performed all the recent operations, but prefers the thermocautery scissors when suitable. It is an admirable instrument in the majority of cases of lingual cancer where the disease is not too extensive. He never uses a ligature through the tongue. The tongue is held by toothed forceps, and just as the ranine arteries are about to be severed the hot blade is allowed to cool a little, in order to allow the arteries to bleed; they are then secured and ligated. Frequent sprays are the best antiseptics.

THE ORIGIN AND NATURE OF RANULA.

Von Hippel¹² in a paper on this subject agrees with Neumann and others that certain ranulae arise from unobliterated portions or branches of the thyro-glossal duct, and reports one interesting and thoroughly convincing case in support of this view. Most cases of ranula have another origin. It is generally an affection of the sublingual salivary glands. As a result of a partial, chronic, interstitial inflammation of the gland, sclerosis occurs, and causes pressure and stricture of the small tubules of the gland. Naturally, the peripheral gland lobules continuing work, there is retention of the secretion and a slow dilatation of the tubules behind the strictures. This process has been observed taking place simultaneously in a number of neighboring tubules, and these tubules becoming wider and wider come in contact, and ultimately melt the one into the other.

Von Hippel considers the process in the small tubules to be primary in the development of ranula, while

changes in the gland vesicles is secondary and incidental. Generally the tumor is near the frenum, and grows outward and backward; sometimes it spreads towards the other side, and so appears median. In other cases the tumor is from the first distinctly lateral and never approaches close to the middle line. The only certain treatment consists in excision not merely of the cyst but of the whole affected gland.

The author makes the following conclusions:

(1) Ranula is a retention cyst of the glandula sublingualis, in rare cases of the glandula incisiva.

(2) It originates in the small ducts of the gland.

(3) It is occasioned by a partial chronic interstitial inflammation, which leads to closure of the small ducts.

(4) The cyst formation is due, at first, to retention of secretion, later to proliferation, degeneration and desquamation of the duct epithelium, on the one hand, and on the other, to transudation from new-formed capillaries.

(5) Increased pressure causes atrophy of the glandular tissue involved.

(6) Submental and acute ranulae are only accidental varieties of the ordinary disease.

(7) The only radical operation for ranula consists in the extirpation of the cyst, together with the whole of the gland diseased.

(8) In very exceptional cases, all the clinical features of ranula are exhibited by cysts of the unobliterated ductus lingualis or its branches.

TREATMENT OF ABDOMINAL INJURIES.

Hyperesthesia of the abdomen after injury is an indication for operation. An increase in the respirations to twenty-eight or thirty per minute makes the indication absolute. Cold extremities are also significant.¹⁴

The surgeon, when confronted with gunshot wounds penetrating the abdomen, ought immediately to perform laparotomy, and look out for the various perforations of the viscera to see if he can close them, without waiting till peritonitis arises to force his hand.¹⁵

Abdominal section is the only treatment to apply in contusions of the abdomen. It has been sufficiently demonstrated that the symptoms are not an adequate index of the gravity of the lesion or lesions; and, if we cannot tell what the injuries are, the only thing to do is to investigate. Mendy found that in 289 cases of contusion from the kick of a horse 30 per cent. of the non-operated patients died; and also 71 per cent. of those operated upon. These figures have no value; for, in many instances, no details were given, and in 18 out of 25 fatal operative cases peritonitis was already established. Of the writer's cases, 20 in all, 14 of the patients were operated upon, with two deaths, while, of the six not operated upon, two died.¹⁶

THE TREATMENT OF GENERAL SEPTIC PERITONITIS.

Since adopting as a routine procedure the intra-intestinal injection of sulphate of magnesia, the results of operations have been so much more favorable than those of former years that McCosh¹⁷ cannot but believe that, in a measure at least, this improvement is due to

¹⁴ Le Dentu: *Le Progrès Méd.*, October 27, 1897; *Monthly Cyclopædia of Practical Medicine and Universal Medical Journal*, January, 1898.

¹⁵ Chauvel: *Lancet*, October 2, 1897; *Monthly Cyclopædia of Practical Medicine and Universal Medical Journal*, January, 1898.

¹⁶ Michaux: *French Congress of Surgery*; *Medical News*, November 27, 1897; *Monthly Cyclopædia of Practical Medicine and Universal Medical Journal*, January, 1898.

¹⁷ *Annals of Surgery*, June, 1897; *American Journal of Medical Sciences*, December, 1897, p. 721.

¹² *Archiv. f. klin. Chir.*, Band iv, S. 164; *Annals of Surgery*, November, 1897, p. 650.

the injection into the small intestine of a saline cathartic. There may have been other changes in the mode of operation and technique, but the author's former experience leads him to place the credit to this special modification of treatment.

During the past year he has operated on eight cases of general septic peritonitis. One of these died as the direct result of the peritonitis, one died from lung complications five weeks after operation, five recovered and remained well, and one is still in the hospital convalescing.

There were two other cases that were moribund that were not operated upon. The cases operated upon were not selected, but were the general run. In six cases a gangrenous appendix was the cause, in one a perforating gastric ulcer, and in one a septic uterus. The histories are reported briefly. The details of the operation may be summarized as follows:

- (1) Chloroform is employed as the anesthetic.
- (2) A free incision is generally made, five or six inches in length. Its situation varies according to the organ which has excited the peritonitis. The purulent fluid is allowed to flow out, its escape being often aided by turning the patient on the side.
- (3) As a rule, the intestines are allowed to escape from the abdominal cavity into hot towels held in the hands of assistants (the patient being generally turned on the side). In certain cases, where the distention is enormous and where the heart's action is very weak, any considerable escape of intestinal coil is prevented. Where possible, however, even at great risk, the intestines are removed, and, if well protected by hot towels, he has not found that the evisceration increases to any great extent the shock of the operation. If the distention is such that their return is impossible, he does not hesitate to open the ileum and allow gas and feces to escape. The openings are closed by Lembert sutures. He has never seen any reason for establishing a temporary artificial anus by suturing the gut to the abdominal wall.

(4) The cause of the peritonitis is removed. If it be an appendix or tumor, it is extirpated. If it be a perforation, it is sutured.

(5) The intestines and the cavity of the peritoneum are thoroughly irrigated with hot normal salt solution at a temperature of 110° or 112° F. or over. A soft rubber tube is passed about among the intestines, or they are well doused if they are outside of the abdomen. Irrigation is preferred to the swabbing by gauze pads or sponges, as the author fears injury to the peritoneum, which will produce a chance for absorption of septic material. A considerable amount of the salt solution is allowed to remain in the abdominal cavity for the purpose both of stimulating the heart and of favoring intestinal drainage.

(6) Sulphate of magnesia is injected, through a hollow needle attached to a large aspirating syringe, into the small intestine at a point as high up as possible in the jejunum or ileum. A saturated solution containing between one and two ounces of salt is used. The needle puncture is closed by a Lembert suture.

(7) The peritoneal cavity is drained generally by four or more strips of sterile gauze thrust in different directions among the intestines, or other forms of drainage are used.

(8) The abdominal wound is but partly closed by sutures. The edges are not closely approximated, but are generally partially drawn together by two or three

silkworm-gut sutures, between which and the intestines is placed a compress of gauze. A wound that gapes somewhat affords freer exit for the escape of peritoneal secretions.

(9) After the return of the patient to bed, if the condition of the stomach will permit, a ten-grain dose of calomel is given. If chloroform has been used this will generally be retained. Rectal stimulation is used for the first twenty-four hours.

A NEW METHOD FOR THE RADICAL CURE OF INGUINAL HERNIA: INTRAPERITONEAL TRANSPLACEMENT OF THE SPERMATIC CORD AND TYPICAL OBLITERATION OF THE INTERNAL RING AND INGUINAL CANAL.

Dr. George R. Fowler has contributed a new operation for the radical cure of inguinal hernia.¹⁸ It consists of intraperitoneal displacement of the spermatic cord and the obliteration of the internal ring and inguinal canal. The steps of the operation are summarized by the writer as follows:

- (1) A curved skin incision which furnishes easy access to all the parts involved in inguinal hernia.
- (2) Splitting the anterior walls of the inguinal canal from the external to the internal ring.
- (3) Isolation of the cord and sac together from the surrounding parts, after which these are separated from each other and cleared well up to the internal ring.
- (4) Double ligature of the deep epigastric artery, with sufficient space between the ligatures to permit of incision.
- (5) Cutting away of the neck of the sac and incision of the posterior wall of the inguinal canal and Hesselbach's triangle.
- (6) The cord is transplaced into the peritoneal cavity from the site of the internal ring to a point below the level of the pubic bone.
- (7) Broad approximation and suturing the peritoneum and transversalis fascia in front of the cord for the space mentioned.
- (8) Obliteration of the internal ring and inguinal canal by accurate suturing, and strengthening of Hesselbach's triangle and the new point of emergence of the cord by outward displacement of the pubic attachment of the corresponding rectus muscle.

THE RESULTS OF KOCHER'S OPERATION FOR HERNIA.

Kocher¹⁹ gives the results obtained by himself and his assistants in 197 operations for the radical cure of hernia. In the operation, as performed by him, the cord at its exit from the external ring is separated, and after division of the cremaster and the tunica vaginalis, the sac is isolated as high up as possible, and is drawn outward through a small opening in the fascia of the external oblique muscle one-half an inch above Poupart's ligament and one-half to one inch externally to the region of the internal ring. If the sac is large, and on account of its funnel shape a recurrence is feared, a small opening is made into the peritoneal cavity to the outer side of the internal ring, and a curved clamp is passed through this opening and down to the lowest limit of the sac. When it is withdrawn, the sac is inverted like the finger of a glove and drawn outward through the incision, tied and cut away. The incision is closed by a couple of stitches through muscle and fascia. Of the 197 cases operated upon, primary

¹⁸ *Annals of Surgery*, November, 1897, p. 603.

¹⁹ *Centralbl. f. Chir.*, May 15, 1897; *Medical News*, July 3, 1897, p. 18.

union was obtained in 91.8 percent. All but 20 of the patients were over fifteen years of age. Of 111 cases, which could be followed, there were four recurrences, that is, 3.6 percent. No patient died from the operation.

(To be continued.)

New Instruments.

AN INSTRUMENT FOR FACILITATING CATHETERIZATION OF THE URETERS.

BY EDGAR GARCEAU, M.D., BOSTON.

THIS instrument is merely a modification of the Kelly instrument. It is to be used only with the patient in the knee-chest position. In this position the bladder, in consequence of the negative pressure within the abdomen, assumes a globular shape by being distended with air, which rushes in through the cystoscope when the obturator is withdrawn. This distention is universal and affects all parts of the bladder equally, so that in viewing the vesical membrane through the cystoscope a smooth surface is presented free from rugæ. So great is the force of the negative pressure that the trigonal area and the ureteral orifices, by virtue of the globular shape which the bladder assumes, are raised in an upward direction, so that they are not on a plane with the axis of the urethra, but lie decidedly above it. This is particularly the case in multiparæ, and especially in virgins, in whom the comparatively rigid vaginal walls act to retract the trigonal area higher than in multiparæ. But in multiparæ the lax condition of the vagina, in a varying measure, allows the trigonum to lie on a plane more nearly corresponding with the axis of the urethra. Yet it will be found that even in multiparæ the trigonum is slightly above the urethral axis.

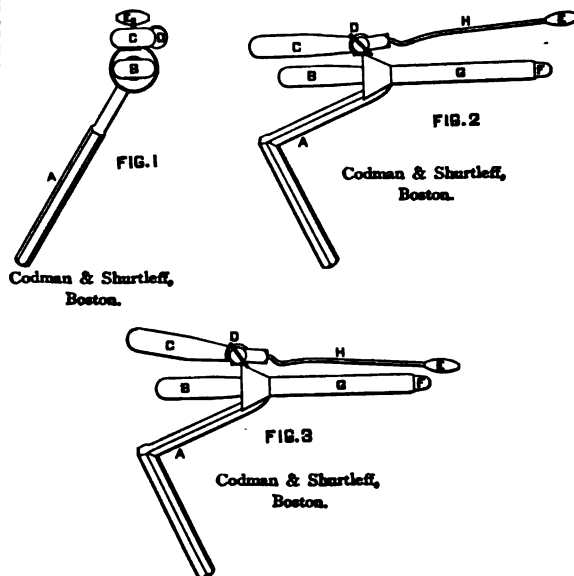
To overcome this difficulty the examiner had to do either one of two things. He either had to point the end of the cystoscope in an inclined plane by lowering the handle so that the ureteral orifice came into view at the vesical end of the instrument; or he had to forcibly raise the instrument, and with it the urethra in order to see the ureteral orifice.

The first method made it very inconvenient for the examiner, for such was the required inclination of the instrument that it often necessitated his assuming a cramped position near the floor in order to look into the cystoscope.

The second method was exceedingly painful for the patient, owing to the traction on the urethra. A very simple device overcomes this difficulty. By it the ureteral area is depressed by pressure of a depressor (E) in the vagina, so that the orifice presents directly opposite the vesical end of the cystoscope, the latter being held in a horizontal plane. The examiner can be seated in a chair, and he is not obliged to change his position and he does not have to incline his instrument. There is a notable absence of pain in using this instrument for no traction on the urethra in an upward direction is required. It will be found of service especially in nulliparæ; but in multiparæ likewise it facilitates catheterization of the ureters to a marked degree. The inspection of both ureteral areas and trigonum is under perfect control.

Explanation of Figures.—All three figures are one-quarter the natural size. The diameter of the

cystoscope is ten millimetres. The handle (A) is shaped so as to clear the buttock. It is fastened to the cystoscope proper at an angle which is shown in Fig. 1 (front view). This oblique insertion is necessary in order to allow urine expelled during the examination to escape without mishap to the examiner. Fig. 2 is a side view with the vaginal depressor elevated; H E enters the vagina; G F enters the bladder. At D is a screw-joint, which when tightened keeps



the depressor in the desired position. The depressor (E) is a flat circular button; B is the handle of the obturator, whose tip (F) is seen at the end of the cystoscope (G).

To Use the Instrument, the depressor is elevated by loosening the joint (D). The cystoscope (G F) is then introduced through the urethra into the bladder, while the depressor and its shaft (H E) are guided into the vagina (Fig. 2). The obturator (B F) is now withdrawn and the instrument is pointed in a horizontal direction, and is turned about 45° to one side or the other. This corresponds to the point at which the ureteral orifice is located above the tip of the cystoscope. The depressor is now forced down (Fig. 3) by elevating the handle (C). This depresses the ureteral eminence and with it the orifice of the ureter. The screw is now tightened. This keeps the depressor in position. The ureter may then be catheterized.

Reports of Societies.

BOSTON SOCIETY FOR MEDICAL IMPROVEMENT.

JAMES G. MUMFORD, M.D., SECRETARY.

REGULAR Meeting, Monday, January 24, 1898, the President, DR. R. H. FITZ, in the chair.

DR. R. C. CABOT read a paper entitled

ADHESIVE PERICARDITIS AS A CAUSE OF HEPATIC ENLARGEMENT, WITH THE REPORT OF A CASE.¹

DR. H. F. VICKERY; This patient is a man forty-two years old, now in the Massachusetts Hospital, who

¹ See page 463 of the Journal.

is under my care on account of Dr. Shattuck's absence. His liver is enlarged because of heart failure. At the age of twenty-eight there had been some years of rather marked use of alcohol when he was exposed to severe physical exertion. He soon felt discomfort in the region of the heart, and had to give up work for a week. Then he was able to resume his labor, and felt very well again until a few months ago, when he began to find that on exertion he was short of breath. He trains horses, and had never been afraid of the most active ones; but lately they tire him out. He was exposed to wet and cold three weeks before entrance, and had a cough, with little expectoration and much dyspnea. Those were the symptoms for which he entered.

On examination we find a dilated heart. The area of dulness is increased, and the epigastrium, the sternum and more or less of the left ribs near the edge of the sternum are affected by the cardiac pulsations. The work that the heart does in the way of lifting is more than is ordinarily seen in healthy persons, yet his pulse is weak and compressible, and he is easily put out of breath. On listening, no systolic or other murmur near the apex or anywhere can be heard, but the pulmonic second is somewhat accentuated. Very little edema is present in the chest, hardly any now, although he is still unable to do much. There is a distinct gallop rhythm at the apex, the sounds there being very valvular, with some reduplication (probably of the first sound) at this point. On further examination below the diaphragm the liver is enlarged and somewhat tender, and reaches down pretty near to the level of the navel. The spleen cannot be felt. Its area of dulness on percussion is increased. The legs are very slightly edematous. We have a weak heart from some cause, with a passive congestion at present mainly showing itself in the liver. The history has been such that cirrhosis might be thought of. He has had no hemorrhages nor diarrhea nor vomiting, and there is no ascites nor jaundice. If he were to lie down and we were to press upon the liver, the veins in the neck, which are somewhat large, would become a great deal larger, showing that the liver is engorged. This largeness of the liver might also possibly be thought to be due to fat, but in that case it would hardly be so tender and the cervical veins could hardly be enlarged so readily by pressure in the hepatic region. No murmur of tricuspid regurgitation can be made out. The possibility of its being an adherent pericarditis exists, but the ordinary signs of that condition are not present. As to the history, there has been no time when he has been sick except that one week fourteen years ago and during this present trouble. As to the physical signs, the veins pulsate in the neck to a certain extent, but they do not empty with the systole: they empty with the diastole. The precordial region heaves in an extensive way, but it is with the systole and not with the diastole; and the left diaphragm moves down as much as the right with inspiration, so that it does not seem as if anything tied the diaphragm to the pericardium more than usual. On taking a full breath the area of cardiac dulness is encroached upon by the left lung. Often, with extensive adhesions, that is not the case. Although I tried very hard to think this would be a good illustration for Dr. Cabot's paper I could not succeed. The only thing it has in common is the myocardial degeneration caused however by direct trophic changes and not be-

cause of being hampered by an adherent pericardium. Furthermore, the passive congestion shows mainly in the liver. I inquired whether as a boy he could run with the rest. He was just as lively as any of his mates. Training vicious and lively horses is pretty severe work and he has done that until lately. When he strained himself he was carrying logs at a mining-camp. The kidneys show a high-colored, heavy urine, as of passive congestion but not a nephritis.

This case came after I had been told of Dr. Cabot's paper and been asked to speak about it, and at that time I happened upon a book which is a very valuable monograph on the subject, by J. F. H. Broadbent, published first in London and now by William Wood in New York. He speaks a good deal about the diagnosis, and one point he makes is that the signs of passive congestion in the lungs are small in cases of adherent pericardium as compared with the swelling of the liver and perhaps ascites, because it is in many cases the right ventricle that fails first, not the left, so that it is the organs affected by the superior and inferior venæ cavæ that show the congestion. One point in diagnosis is, in his opinion, the absence of accentuation of the pulmonic second sound, as making it more likely that the heart failure is not due to anything in the left side of the heart. One case of great interest that he reports is of a man in whom the adhesions so affected the right auricle that the superior and inferior venæ cavæ, as it were, emptied into each other. This man, if he were in the ordinary horizontal position in bed, had swelling of the lower extremities; but if the foot of the bed were raised the edema in the legs lessened somewhat and the thorax and face began to swell, showing the effect of gravity as aiding one of these veins against the other, according to position.

As I understand it the important adhesions in these cases are between the outside of the pericardium and the chest walls. It is not impossible that the heart may be fatally embarrassed by adhesions of the pericardium merely to the heart itself. If, for instance, it is dilated and adhesions form at that time, it cannot get small again; but a great deal more harm is done if it is fastened, as the whole right ventricle may be, to the diaphragm and then other portions of the heart to the front wall of the chest and also to the backbone. Although it is not absolutely necessary that these external adhesions should be present, yet in the majority of serious cases they are. One way of making the diagnosis which Broadbent speaks of is that the degree of severity of the illness should be balanced against the apparent reasons for such a condition, the physical signs against the symptoms; and if the physical signs that are apparent are not sufficient to account for the cardiac failure present this disproportion makes adherent pericarditis more likely.

DR. JACKSON: I should like to ask Dr. Cabot what the size of the heart was?

DR. CABOT: Normal.

DR. JACKSON: That adds still more interest to the case. I looked over several of the cases in Broadbent. He speaks of the heart as being enlarged in almost every case. In looking up some time ago the cause of enlargement of the heart, outside of valvular disease, I found that the two largest hearts were due to adherent pericardium, hearts weighing respectively 1,300 and 1,090 grammes, four times the normal size. At one of the recent pediatric meetings, Osler spoke of adherent pericardium as a cause of enormous enlarge-

ment of the heart in children. He did not refer especially to the enlargement of the liver. I am sorry to say I cannot tell in my hospital cases whether there was enlargement of the liver or not. I was merely looking for causes of enlargement of the heart outside of valvular lesions. I think it is more difficult to explain the cause of the congestion with no enlargement of the heart.

DR. VICKERY: I would like to ask about the state of the heart muscle in Dr. Cabot's case.

DR. CABOT: As to the spleen, there was no mention of it in the autopsy report, and I do not remember the condition during life. As to the tea, I spoke of that because I remember at the time when Dr. Shattuck was going over all the possibilities and the impossibilities of cirrhosis he inquired, first, if there was any possibility of this child taking much alcohol and found there was not. Then he said, "Why should we not have a tea cirrhosis?" But he found the child had not been drinking much tea.

DR. J. L. GOODALE read a paper on

THE TREATMENT OF CERTAIN FORMS OF CERVICAL ADENITIS BY THE INTRODUCTION OF MEDICAMENTS INTO THE CRYPTS OF THE FAUCIAL TONSILS.²

DR. LANGMAID: I knew what Dr. Goodale was doing, and it seemed to me it might be the beginning of very useful therapeutics. When he communicated to me the fact that the tonsil through the uninjured mucous membrane of the crypts would receive finely divided carmine, carbon, etc., of course it was suggested to me that here might be a way to treat diseases in the tonsils. There is no doubt that the unbroken mucous membrane in the crypts of the tonsils does allow such substances to permeate it. I had very great interest in listening to his paper. We know how frequent these enlarged cervical glands are in children with depraved constitutions. Sometimes they are single. Very frequently they are the beginning of a chain of enlarged lymphatic glands extending down to the clavicle or beyond. They give rise to a great deal of apprehension. Sometimes they suppurate; frequently they do not. I remember that I made some efforts many years ago, in fact I had an instrument made to evacuate these glands when they suppurated, hoping thereby to get rid of them and to save the scar made by incision. So far as my recollection goes that was entirely unsuccessful. I have used in former years various substances, principally the compounds of iodine, to shrink the tonsil by injection directly into the tonsil. Such good results had been reported that I thought it was worthy of trial but I never got results which were at all satisfying.

Dr. Goodale says nothing about the effect upon the tonsil, and that was not his object; he was after the glands beyond the tonsil; but if there is any efficacy in such a medicament as iodine, it seems to me that this is an excellent way to get it into that gland. The painting on the exterior of the gland I think has disappointed every one. Either the thing goes away — probably it would without the iodine — or it suppurates; sometimes I have thought it hastens the supuration.

I am sure I hope Dr. Goodale will go on with these experiments, and one source of apprehension that I spoke about may be removed in this new way.

DR. COBB: I have been very much interested in

² See page 465 of the Journal.

the paper. I have never tried this injection, but it seems to me that it offers a good many chances of improvement on any methods that we know. There are one or two clinical points that should be considered in estimating the scientific accuracy of this method. One is the effect of the iodine swallowed during the injection. It is almost impossible in a gagging throat not to inject more or less of the iodine into the mouth. I see that Dr. Goodale uses a very small amount, probably too small to affect the organization at all. Another possibility of error is the characteristic of these glands to increase and decrease without apparent reason. Of course, if they should do this during treatment, it would be misleading. I should like to ask Dr. Goodale about the effect of weak solutions of iodine on bacteria. How strong a solution is supposed to injure the bacilli of tuberculosis? Whether the effect of injecting a drug in complete or nearly complete solution as the iodine is has the same effect as the injection of carmine, which is in more or less fine particles, and therefore more adherent and less liable to be expelled by the movements of swallowing, I think it is also to be considered; possibly it would be better to inject some solution which was less easily expelled than a watery solution of iodine, since at every movement of swallowing the tonsil is more or less compressed and whatever is in its crypts is apt to be thrown out.

DR. FARLOW: I think this a very valuable and interesting paper, particularly so as supplementing the other article which Dr. Goodale sent to the last International Congress at Moscow, and published in the *Archiv für Laryngologie*.

For a number of years I have treated cases of more or less enlargement of these glands under the angle of the jaw on the supposition that very many of them were dependent upon, as certainly they accompanied, some diseased condition of the tonsil, even when the tonsil itself was not enlarged. Thorough inspection of all the crypts often brings to light some irritating mass which may have kept up the enlargement of the gland under the jaw. Cutting open or removing these diseased areas and painting the cut surface with Lugol's solution has often served to bring about a reduction in the size of the cervical gland. I did not feel that the iodine made its way into the gland, but that the removal of a diseased area, however small, connected with the cervical gland, might lead to a shrinkage of the latter.

If it were possible to find a case where the glands were symmetrically enlarged on the two sides, it might be instructive to watch the comparative results of injecting iodine into the crypts of one tonsil and painting iodine on the free surface of the other.

DR. COOLIDGE: This paper shows an ingenious sequence to Dr. Goodale's investigations of absorption by the tonsils. If we can paint the inside of enlarged glands with iodine instead of the outside, I hope that we shall accomplish more by it. Why is it not just as possible to inject solutions of iodine into the subcutaneous tissue of the leg and have it go up into the glands of the groin, or into the arm to go into the glands of the axilla, as to inject it into the tonsil to get it into the glands of the neck? Of course, the only proof of the value of this is clinical experience, and if it can thus affect these cervical glands, which are often very troublesome, it will be a valuable addition to our therapeutics. I should like to

emphasize the great importance of looking at the tonsillar region in all cases of enlarged glands of the neck. I think it probable that in most of these cases the source of invasion is the tonsillar region or near it, in the glandular structures of the fauces. We know that peritonsillar abscess may recur over and over again on one side, while the other is never affected.

We may not see any probable source of bacterial invasion into the peritonsillar region, although it no doubt exists. I have no doubt that in many of these cases of large cervical lymphatic glands there is an open door somewhere in the faucal region which we ought to make attempts to close, even though we do not see it, by removing glandular tissue. I should like to ask whether iodine stays in solution after it gets into the lymphatics. It seems to me if it did not it probably would have a better effect than if it did. A substance readily soluble, even an antiseptic, would probably not stay in a lymphatic gland long enough to produce any bactericidal effect, whereas if something could be precipitated in the gland, it would be more likely to have a good effect there.

DR. CABOT: I should like to ask why he did not inject his solutions directly into the gland?

DR. LANGMAID: It should be remarked that these glands, so far as my experience goes, very frequently begin with the second dentition, and if they do not suppurate are apt to disappear with the end of dentition.

DR. LELAND: I came rather to listen this evening than to say anything, but have been very much pleased with Dr. Goodale's paper giving the practical results which follow as a corollary the experiments set forth in his paper lately published in B. Fränkel's *Archiv*. Both of these papers are confirmatory of the observations of Dr. J. Sims Woodhead published in the *Lancet* of October 27, 1894, in "An Address on the Channels of Infection in Tuberculosis," in which he demonstrates that tubercle bacilli (probably also their products) are absorbed by the tonsil, or rather are carried into it by means of the migratory leucocytes. In this paper he shows that the bacilli themselves have been demonstrated within the leucocytes in various parts of the tonsil, from the surface to the deeper lymph channels. Both he and Dr. Goodale have shown that other particles are also taken into the tonsil, and that where the bacilli themselves may disappear, insoluble particles are carried along apparently in the lymph current. It would seem, therefore, if these morbid products can be carried into and through the tonsil into the glands farther along in the lymph channel, that various medicaments should be also. Following out the suggestion in the above-mentioned paper in the *Lancet*, I have since its publication endeavored to sterilize the mouth, and thus secondarily the tonsillar crypts and other lymph structures of the fauces, by introducing antiseptics into the mouth. This seems to be best done by the use of very minute doses of bichloride of mercury in tablet form, as made by various pharmaceutical chemists, containing from one-thousandth to one-two hundredth of a grain. These tablets were brought to my attention some years ago by Dr. Garland, who I hoped would be present this evening, and who told me that he had used these tablets with great success in the treatment of various ulcerative processes of both the mouth and the fauces. It can be demonstrated that

there are from ten to twelve drops of saliva in the mouth under its various conditions except when unduly excited. If we therefore introduce one-five-hundredth grain of corrosive sublimate into the mouth every one-half to one hour we shall have a solution of the strength of about 1 to 5,000 or 6,000 bathing its interior almost continuously. I have applied this method to the treatment of such affections as aphthæ, canker, mucous patches, and lacunar tonsillitis with gratifying success. I have tried this method also in cases of enlargement of the glands at the angle of the jaw with what seems to me good effect, but as I have not made definite experiments in this line, and as patients after receiving the recipe often disappear, I cannot make definite statements *pro* or *con*. But it may be said, that it seems convincing that some of the medicament must reach the intratonsillar spaces and thus diminish the virulence of the invasion of the micro-organisms, so that the lymph structures can better perform their bactericidal functions. And as this solution is largely swallowed, its inhibitory influence is not without its effect on the lower parts of the alimentary canal, diminishing the gastric fermentation now commonly attributed to bacterial action and so often complained of when the decomposing contents of the tonsillar crypts are swallowed; and assisting the phagocytic action of the intestinal leucocytes given out by the adenoid structures in this location, and so preventing extension of the morbid process, as Woodhead pointed out, into the omental and mediastinal glands, and so into the lungs themselves.

Hence, though this method deduced by Dr. Goodale and evidently so successful in his hands, will probably be fully demonstrated to be a valuable addition to our armamentarium in the treatment of glandular swellings in this locality, it seems to me also that disinfection of the mouth, as nearly as possible without injury to its mucous surfaces, has a very important place in diminishing the numbers of those pathogenic micro-organisms which are so prone to seize upon favorable conditions to become actively parasitic.

DR. GOODALE: Dr. Langmaid spoke as to the direct local effect upon the tonsil. That was the first effect I noticed after the injection; the tonsil shrank before the lymphatic glands of the neck, and in several instances the amount of shrinkage was very striking. In one case, at the beginning of the treatment six weeks ago, I could introduce the point of the canula one and a half inches into the tonsil before I reached the base of the crypt; and when I did it recently, I could hardly get it over one-half inch, so that the tonsil had shrunk very decidedly.

As to the possibility of the fluid injected flowing back, being swallowed, and indirectly producing an effect through gastric absorption, in the beginning I found that a flowing back did happen, but that was because I introduced too much. Of late I take only a drop or two, and that is enough to fill a crypt of the ordinary size.

As to the effect of iodine on bacteria, I think that direct experiments in the laboratory have not shown any marked result, but clinical experience has shown, certainly in cases of tuberculosis of the glands, a marked effect. I might as well refer here to Dr. Cabot's question and that of Dr. Coolidge with reference to the direct injection of iodine into the glands, and the indirect injection into the subcutaneous

tissue. A recent writer whose article I saw reviewed in the *Centralblatt für Chirurgie* speaks of the direct injection of iodine into the tubercular glands, and reports a number of cases with striking and excellent results. Such treatment is, however, occasionally followed by sloughing.

The intramuscular injection of iodine has been practised by Frassi, whose paper I saw reviewed in the same *Centralblatt*. In these experiments he found the tubercular glands did diminish in size, and I think some entirely disappeared. Dr. Farlow spoke of comparing the effect upon glands symmetrically enlarged on either side of rubbing in iodine on the free surface of one tonsil and introducing it into the crypts of the other. I think that ought to be done if one had a suitable case. In my cases I think there has been such a disparity in the size of the two glands that that would have to be taken into account. In most of them the enlargement has been unilateral. Dr. Cobb suggested the introduction of iodine in an insoluble condition or the introduction of substances partially soluble. I have tried iodoform in ether, and the silver canula went to pieces very rapidly. That is one of the reasons why I gave it up, but I think it is worth trying if you can get some canula that will stand it. It would be valuable if you could have some partially soluble substance stay in the crypts some considerable time. I suppose a soluble substance, as Lugol's solution, would disappear rapidly from the tonsil and the effect upon the gland be rather short, so that something that would have a long-continued effect would have an advantage.

Dr. Leland spoke of the use of solutions of mercury in the mouth with the object of effecting sterilization and so indirectly preventing the absorption of septic or putrefactive substances into the tonsil. It seems to me that it would be rather a difficult thing to bring about a sterilization of the crypts of the tonsil in this way. In the first place, the experiments of Miller have shown that a large amount of mercury is necessary to sterilize the mouth completely. In the second place, a constant gargling of the mouth with a 1 to 2,000 solution in many persons brings on the development of superficial ulcerations. Lermoyez worked up the local effect of mercurial solutions upon the mouth. In one case he scratched a man's mouth, and it promptly healed up. The same man had his mouth scratched again, and the abrasion was painted with a weak solution of mercury, with the result that instead of healing it developed into an ulcer. This was repeated in a number of individuals. Lermoyez's explanation was that the mercury in the mouth inhibited the regeneration of epithelium, and that complete sterilization of the mouth could not be produced without strong solutions that might bring on mercurialism. So it would seem possible that the amount of mercury sufficient to sterilize the crypts by the absorption might be followed by the development of other troubles.

TWO NEW HOSPITALS FOR MOSCOW.—A Russian physician, who recently died in the East, has left 1,000,000 roubles, a half million of dollars, for a general hospital for Moscow, while a prominent landowner in the neighborhood has offered the land and the necessary funds for the erection of a hospital for children afflicted with chronic or incurable diseases.

ASSOCIATION OF AMERICAN PHYSICIANS.

THIRTEENTH ANNUAL MEETING, WASHINGTON, MAY 3, 4 AND 5, 1898.

ADDRESS by the President, Dr. F. C. SHATTUCK, of Boston, on

SOME REMARKS ON HOSPITAL ABUSE.¹

Dr. S. J. MELTZER, of New York, read a paper on

CONGENITAL STENOSIS OF THE PYLORUS IN INFANTS.

This author gave a brief review of the literature of this subject, and reported a case coming under his own observation in which, for the first time, operative treatment was resorted to. The diagnosis rested upon the following points: vomiting of a peculiar character, dilated stomach and peristaltic movements of the stomach, which could be called forth at any time by touching the abdomen. A gastro-enterostomy was attempted, the smallest Murphy button being used; but the operation was not a success.

Dr. I. ADLER, of New York, reported an almost identical case, and exhibited the pathological specimen, with the statement that microscopical examination had shown a hyperplasia principally of the circular fibres, the longitudinal fibres being but slightly altered.

Dr. A. JACOBI, of New York, referred to the fact that up to within a short time no one had been aware that such cases existed, and that they now seemed to be multiplying very rapidly. He suggested that embryologists should study the origin of such cases, and referred to the belief held by Dr. John Thompson, of Edinburgh, that there existed a simultaneous spasm of the pylorus and stomach brought about by nervous inco-ordination.

Dr. MELTZER was not inclined to regard Thompson's theory as the correct one.

GASTRIC CARCINOMA ASSOCIATED WITH HYPERCHLORHYDRIA.

Dr. D. D. STEWART, of Philadelphia, called especial attention to the immense difficulty attending the positive diagnosis of certain cases of gastric carcinoma, and especially of those engrafted on the previous site of ulcer, in which a normal or an excessive secretion of gastric fluid persists even after the symptoms of the gastric ailment have been prominent for a long time. He related a case in which a section, eighteen months before the patient came under his observation, disclosed what the surgeon operating and others present at the time regarded as diffuse carcinoma, the stomach being apparently too much involved even for a gastro-enterostomy. A gland in the omentum, removed at the time, was found to be carcinomatous. Despite this, the patient not only recovered from the operation, but to all appearances became entirely well. Symptoms recurring after a time, he was referred to Dr. Stewart by Dr. Keen. A study of his condition at that time would have caused the opinion to be formed that the case was one of chronic ulcer, not carcinomatous, but for the known result of the examination of the gland. The patient was operated upon a second time, and died. Autopsy showed two very large carcinomatous ulcers, with a thickened, non-carcinomatous pylorus.

Dr. W. E. FISCHER related a case with a somewhat similar history. The patient was first seen in

¹ See page 413, No. 18, of the Journal.

November, 1896, when he complained of frequent attacks of vomiting and distressing weight in the stomach. No other diagnosis than gastric neurosis seemed possible. Under treatment his condition improved, and continued fairly good until May, 1897, when the patient had a severe attack of pain in the epigastrium and a sudden rise of temperature. A few months before this attack a small tumor lump had been located in the abdomen. It was now found to have increased markedly in size. From the time of the first visit up to the date of operation frequent examinations of the stomach contents had always shown the presence of hydrochloric acid. There was considerable doubt as to the diagnosis, but an operation disclosed a large tumor involving the pylorus and extending into the smaller curvature. Autopsy disclosed no signs of ulcer or ulcer scars, but a cancerous growth situated at the pylorus causing almost complete stenosis and presenting an abscess cavity which, however, did not communicate with the lumen of the stomach.

DR. W. W. JOHNSTON thought that there must be some explanation for the temporary improvement which is frequently observed in these cases, and suggested that it might be due to improvement in a complicating catarrhal condition.

DR. JANEWAY referred to two of his cases in which there had been improvement and very considerable gain of weight, amounting in one to forty pounds. In this case there had been a continued presence of large amount of urea, which suggested the failure of another supposed diagnostic sign.

DR. C. G. STOCKTON suggested an explanation for the rather extraordinary transient gains in weight when undoubted carcinoma exists, in that it might be due to relief of a condition of food stagnation which had been present.

DR. A. H. SMITH also reported a case of gastric carcinoma with the continued presence of hydrochloric acid.

DR. STEWART, in closing, stated that the gain of weight in his case had been sixty pounds, and with entire cessation of symptoms for fifteen months, making it different from any other case so far recorded, and he believed that the high output of urea referred to by Dr. Janeway might be expected in cases where the stomach functions were well preserved.

DR. SIMON FLEXNER, of Baltimore, read a paper on
GASTRIC SYPHILIS, WITH THE REPORT OF A CASE OF PERFORATING SYPHILITIC ULCER OF THE STOMACH.

This patient, a man of fifty-two, presented as the most prominent symptoms ascites and edema of the lower extremities and scrotum. The ascites, which had been relieved by tapping, diminished within the last year of his life, the accumulation of fluid becoming inconsiderable. Death took place suddenly following a hearty meal. Just before death the symptoms were great abdominal pain and tympany. The autopsy showed a diffuse sero-fibrinous peritonitis, the abdominal cavity enormously distended and drumlike. Stomach contents and gas were present in the peritoneal cavity, a perforation existing in the fundus of the stomach. The prevailing micro-organism in the peritoneal contents was the bacillus *aerogenes capsulatus*, with which was associated the bacillus *coli communis*. The liver contained a large gummatous mass which probably had at some time pressed upon the portal vessels. The di-

agnosis of syphilitic ulcer of the stomach was based upon the history, autopsy and microscopical examination.

Dr. Flexner reviewed at length the literature concerning cases of syphilitic lesion of the stomach, and stated that he was only able to find thirteen cases in all, of which five belonged to the inherited and eight to the acquired form. No instance of the disease has been previously recorded in the English language, and with one exception the entire literature is German.

DR. I. ADLER, New York, read a paper and made

SOME OBSERVATIONS ON CARDIAC SYPHILIS.

Dr. Adler attempted to show that pathological changes demonstrable by the microscope can occur in the blood-vessels and in the walls of the heart, in syphilis acquired as well as congenital, even in cases where there are no clinical symptoms or gross pathological lesions.

From a study of the literature and of the cases coming under his own observation, he concludes that in reviewing all these anatomical and clinical considerations, the necessity becomes apparent of methodically considering syphilis as an etiological factor in heart disease. It may not happen very often that an absolutely positive diagnosis of heart syphilis can be established; but in every case in which the etiology is not absolutely clear, and in which syphilis cannot with reasonable certainty be excluded, the iodides and mercurials should be accorded the same privileges as digitalis and strophanthus, strychnine and nitro-glycerine. If carefully administered, they cannot do any more harm than these latter, and may do immeasurably more good.

DR. E. G. JANEWAY, of New York, read a paper on

DANGER OF ERROR IN DIAGNOSIS BETWEEN CHRONIC SYPHILITIC FEVER AND TUBERCULOSIS.

A certain number of cases demonstrably of specific nature have come under my observation condemned as being tubercular, not, as a rule, by physicians of little experience, but by those of well-established reputation, some being teachers and writers of medicine.

Dr. Janeway then relates a number of cases of which the following are fair examples:

CASE I. The first of this group had been sent to a noted health resort for typical subjects, but instead of improving had steadily lost ground, so that after three months' trial he came to me reporting a loss of forty pounds in weight, a slight continued fever, a sense of weakness and a pain in his left side. On examination, this pain was found to be dependent upon a peri-hepatitis, which was productive of distinct friction-sound with both inspiration and expiration, and also of palpable friction fremitus. An inquiry disclosed the fact that he had been a victim of syphilis ten years before. No pulmonary lesion could be found. Under anti-syphilitic treatment he was well in two months, and has remained so. He has been seen by two of the leading diagnosticians of this country in different cities, neither of whom had made out the nature of his sickness, and one of them had sent him to a health resort for tuberculosis of the right lung.

CASE II. An adult male, who came to be examined because of fever, sweating at night, loss of weight and pain in the right side. He had been ordered by a professor of medicine, who was also a noted examiner

of diseases of the chest, to give up his business and remove to a resort for consumptives. A critical investigation disclosed the fact that two of the ribs on the right side were sensitive to pressure, and that there was a small sinus in the neighborhood of the right clavicle. He admitted syphilitic infection in early manhood; and anti-syphilitic treatment removed his fever, and within a month he had regained his weight.

The consideration of the facts here narrated have convinced me that many physicians are not aware that fever may attend the late manifestations of syphilis, more particularly of visceral syphilis. The class of cases to which I have drawn attention do not go to a syphilologist, but to the general or consulting physician, and this paper is presented with a view of directing attention to the necessity of considering syphilis as a possible explaining cause of those obscure phenomena which are usually considered to import tuberculosis, malaria or sepsis. Ignorance of the fact that syphilis in what is termed its tertiary period may occasion a fever of long duration, malaise, emaciation and perhaps perforation also, without necessarily presenting definite local manifestations, is largely the explanation of the mistake.

DR. I. E. ATKINSON: There is nothing more striking than the want of active attention on the part of the medical community to the frequent presence of syphilis in all sorts of obscure diseases. He related a case, now under care, in which malaria and hepatic abscess had both been suspected, but in which a cure was rapidly following the use of anti-syphilitic treatment.

DR. S. J. MELTZER: The difficulty in diagnosis is made still greater by the statement of Hansemann, that out of 22 syphilitic lungs examined there were only five in which he did not find the tubercle bacillus, or some changes that looked like general tuberculosis. Under these circumstances we must always give the patient the benefit of the doubt by the use of anti-syphilitic remedies in obscure cases.

DR. C. G. STOCKTON asked Dr. Janeway whether examinations of the blood had led to any conclusions as to whether the temperature depends upon the toxemia accompanying syphilis, or upon the secondary breaking down of gummata and whether the tuberculin test would be of value in differentiating.

DR. V. C. VAUGHAN called attention to the fact that the two diseases might and do exist together in a good many cases.

DR. JANEWAY, in conclusion, replied that examinations of the blood had not given him much help and that he did not think it safe as yet to make use of the tuberculin test in such cases as a number had been reported in which the symptoms were aggravated by the test. The method of treatment used by him was the old preparation of tincture cinchona compound with potassium iodide and mercury bichloride.

AFTERNOON SESSION.

NEPHRITIS OF MALARIAL ORIGIN,

by DR. W. S. THAYER, of Baltimore.

In 758 cases of malarial fever treated in the wards of the Johns Hopkins Hospital, albuminuria occurred in 46.4 per cent., and casts of the urinary tubules in 17.5 per cent.

Albuminuria is much more frequent in the estivo-autumnal form fever than in the regularly intermit-

tent fevers, occurring in but 88.6 per cent of the latter and in 58.3 per cent. of the former. Casts were found in 12.2 per cent. of the cases of tertian and quartan fever and in 24.7 per cent. of the cases of estivo-autumnal fever.

A comparison of our figures with the statistics of others would tend to show that in the estivo-autumnal fevers albuminuria is as frequent, if not more so, than it is in scarlet fever and in diphtheria. Out of 1,882 cases of malarial fever observed in the hospital and in the out-patient department there were 26 instances of nephritis of malarial origin. Of these 13 recovered, 4 died and in 9 the result was doubtful; in two instances the disease probably became chronic.

Nephritis occurs probably in about two per cent. of all the cases of malarial fever in the neighborhood of Baltimore. The complication is far more frequent and severe in estivo-autumnal fever, where its occurrence is more frequent apparently than in scarlet fever, diphtheria or typhoid fever. There is nothing especially distinctive in the clinical characters of the disease; it shows the usual features of an acute toxic nephritis. In but two of the fatal cases was an autopsy allowed. In one of these there was, in addition to the malarial infection, a general streptococcus septicemia. There was nothing especially distinctive in the results of the anatomical investigations.

The frequency of albuminuria and nephritis in the malarial fevers of Baltimore, while somewhat below that observed in acute infections such as typhoid fever, scarlet fever and diphtheria, is yet considerable.

In estivo-autumnal fever, albuminuria and nephritis are, according to our statistics, fully as frequent as in any of these acute diseases.

There is reason to believe that malarial infections, especially in the more tropical countries, may play an appreciable part in the etiology of chronic renal disease.

DR. F. FORCHEIMER said that he could corroborate in a general way the statement as to the frequency of kidney troubles in the estivo-autumnal form of malaria, but that the majority of cases he had seen were found in children. He called attention also to a peculiar form of nephritis in which he had found in the urine a large deposit of almost black pigment. It occurred in cases showing the tertian as well as the estivo-autumnal parasite.

DR. WILLIAM OSLER called attention to the fact that we have had no single case of hemoglobinuria or hematuria due to the use of quinine, which is rather remarkable considering how frequent the condition is supposed to be in the south.

DR. I. E. ATKINSON stated that he had been for many years convinced that malaria is an important factor in producing kidney changes, and that a certain percentage will be found almost constantly.

DR. W. T. COUNCILMAN, of Boston, read a paper on

ACUTE INTERSTITIAL NEPHRITIS.

Dr. Councilman described an interstitial nephritis which consisted of an acute non-suppurative inflammation of the kidney, characterized by cellular and fluid exudation in the interstitial tissue, accompanied by, but not dependent upon, degeneration of the epithelium. The interstitial lesion consisted in the presence of cells similar to those described by Unna as plasma cells. These cells are due to emigration from blood-vessels and proliferation of the emigrated cells. They are formed in other organs, chiefly in the spleen and

bone marrow, from lymphoid cells, and are carried to the kidneys by the blood. Accumulations of plasma and lymphoid cells may be found in the blood-vessels of the kidney without any interstitial lesions. Such cases of acute interstitial nephritis are frequently found in the infectious diseases of children, notably in diphtheria and scarlet fever, but they may be found under other conditions.

DR. R. H. FITZ, of Boston, described

A CASE OF MYXEDEMA AND ALBUMOSURIA; TREATMENT WITH THYROID EXTRACT, DEATH.

The novel feature in this case was the albumosuria which continued throughout the progress of the disease from the time it was first observed. Attention is called to its occurrence as a rare condition, and to the fact that since albuminuria is relatively frequent albumose might easily be mistaken for albumin unless the customary tests with heat and nitric acid are duly controlled.

On the addition of nitric acid to the urine a dense white precipitate is formed which is dissolved when the specimen is boiled but reappears on cooling. When the urine in a test-tube is boiled, it becomes opaque until the boiling-point is reached, when it suddenly clears up, and remains so until the liquid is cooled, when a white precipitate forms. Such action is indicative of the presence of albumose and should lead to a more extended chemical analysis. Dr. Fitz's case, together with a few others that have been collected, shows that despite temporary improvement under the use of thyroid extract, this remedy is not infallible in myxedema.

(To be continued.)

Recent Literature.

Vade Mecum of Ophthalmological Therapeutics. By DR. LANDOLT and DR. GYGAX. Pp. 138. Philadelphia: J. B. Lippincott Company. 1898.

When considering books of the class in which are included such as the one which has been recently prepared by Dr. Landolt and Dr. Gygax, the question comes up as to whether they are desirable additions to an already overburdened literature. The authors state frankly at the outset that their aim has been to present in compact form the indispensable facts of ophthalmological therapeutics; and to meet that end they have produced a volume of such size as to be easily carried about in the pocket, and which contains in an alphabetical sequence three hundred and twenty-six paragraphs relating to ophthalmological subjects. Their desire that it may prove acceptable to the student preparing for examination, and a true friend to the busy practitioner seems likely to be gratified, for the qualifications which are generally supposed to be necessary to meet such conditions have been developed in a marked degree. Many of the formulæ will prove interesting even to the trained ophthalmologist.

W. D. H.

THE MASSACHUSETTS BOARD OF REGISTRATION IN MEDICINE examined, May 17th, 57 candidates for license to practise; five were women. The next examination will be in July.

THE BOSTON Medical and Surgical Journal.

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CARE OF THE WOUNDED IN ACTION IN BATTLE-SHIPS.

THE cockpit of old time men-of-war is now obsolete. Then it was practicable to select a place below the water-line, of sufficient size and with sufficient light, to which the wounded from the decks above could be lowered through large hatches, above one another, by ingeniously devised contrivances of many kinds to which naval surgeons have given much attention of recent years. Now these devices are useless and only man-handling is relied upon.

The internal arrangements of the battle-ship are as varied as those of residences. The *Maine* had better facilities for removing the wounded to surgical care than most battle-ships, because of a wider hatch in the upper deck from which men could be lowered and a broad space below the protected or armored deck, commodious enough to contain twelve mattresses on deck. This cockpit depended, however, on the uncertain supply of electric light; and in close action the battle-hatches were closed, cutting off, as in most other battle-ships, the communication between the decks, except for ammunition which passes through ammunition-hoists (vertical cylinders extending through the deck from the magazine, with openings on different decks).

No one place can be selected for care of the wounded to which all can be taken during battle. There is no place of safety under the water-line, for want of room and light. Sick-bays are usually on the berth-deck and inaccessible to persons above or below that deck, owing to the battle-hatches on all decks being closed and fastened so as to cut off communication between decks. Besides the vertical there are lateral obstructions to the removal of the wounded to any one place in the ship. There are closed water-tight compartments, narrow and tortuous passages, the hurrying to and fro of men in performance of various duties, and the passing of ammunition in these passages.

In view of these obstacles to concentrating the

wounded in one place, desirable but impracticable, the surgeons of our battle-ships practically agree on the following points:

(1) There is no safe place for a cockpit in action.

(2) The impracticability of selecting any one place to which wounded from any part of the ship could be carried.

(3) The removal of all wounded must be by men without any mechanical contrivance.

It is now usual to select such "stations for succor" as will be near the crews to be helped—in places comparatively safe, out of the way, and sufficiently commodious to rest six or more mattresses on the deck, and with a good supply of electric light. The larger the surgeon's division in the ship, the more the stations for succor. At these stations are a surgeon, an apothecary or a nurse, with "first aids"—as pocket-case, elastic bandages, lint, cotton, morphia, hypodermic syringe, whiskey, etc.—in some package ready at all times for use. It is utterly useless to think of performing a surgical operation during a battle.

This new condition renders more important the duty of the medical officers to instruct the crew in the simpler methods of checking hemorrhage.

The monitors are far better arranged for care of wounded than ships of the *Massachusetts* class.

While battle-ships add to the security of the living, they add also to the danger of the wounded in battle.

A VIRUS WITHOUT MICRO-ORGANISMS?

THE myxomatous disease of rabbits occurring among the animals in the Institute of Hygiene at Montevideo, as described by Prof. G. Sanarelli, suggests the above question.¹

The disease began spontaneously early in the year 1896. Animals apparently in perfect health are attacked by an inflammation of the lids and conjunctivæ of both eyes. By the next day the lids are so swollen that they are completely closed, and yield an abundant sero-purulent discharge. Small subcutaneous tumors appear all over the body, and there is enormous swelling in all parts where skin and mucous membrane come together. The swelling increases steadily till the animal dies, usually in from two to five days. Autopsies show gelatinous, elastic and very vascular subcutaneous tumors, hypertrophy of lymphatic glands and enlarged spleen. The subcutaneous tumors consist of a typical myxomatous tissue with a predominance of stellate elements and many blood capillaries. The eyelid has ten times its normal thickness owing to the enormous increase of myxomatous elements. The swelling is of the same character in all the other organs affected.

The tissues contain no bacteria or other parasites, and attempts to cultivate organisms from the secre-

tions or tissues, using every method known to a modern bacteriological laboratory, are entirely negative in result. Professor Sanarelli is driven to the conclusion that the etiological agent of this disease does not belong to any of those groups of organisms which we are now in the habit of considering as the cause of specific disease. But, nevertheless, the myxomatous disease can be transmitted indefinitely from rabbit to rabbit. A drop of blood, a fragment of tumor, a trace of secretion from the eye, or a bit of some viscus, are equally virulent. But the urine, pleural effusion, and the aqueous humor are not virulent. Experimentally the virus may be put under the skin, into a vein, into the stomach or into the eye. After four or five days' incubation a myxomatous swelling begins at the site of inoculation, and all the other symptoms follow. Death usually occurs about the tenth day after inoculation. When the virus is given with food the autopsy shows that the digestive tract is normal, as in all other cases.

The disease spreads spontaneously from rabbit to rabbit by means of the secretion from the eyes and nose. It can be produced experimentally by putting a little secretion into a healthy eye with a platinum loop. The blood during incubation begins to be virulent after twenty-four or forty-eight hours. Pure sterile serum from the blood is also virulent. Two hundred cubic centimetres of sterile broth became virulent in doses of one cubic centimetre, after being inoculated with one or two drops of blood. But this broth had no effect on a second flask of broth. The virus increased in strength in passing from animal to animal during two years, so that now it will kill in five days, with slight lesions showing only on the fourth day. The virus is weakened by age and by mixing with antiseptics. Mixed with equal parts of 1 to 1,000 corrosive sublimate or five-per-cent. formaline solution for six hours, the virus becomes slightly less active, making the disease last a little longer. But moist heat at 55° C. for a few minutes renders the virus entirely inactive.

Rats, guinea-pigs, monkeys and birds are not susceptible to this virus. One dog inoculated every two or four weeks died after nine months, showing paresis and elephantiasis of the fore legs with alopecia and hemophilia all over the skin. Very virulent serum from rabbits' blood inoculated subcutaneously in doses of from five to eight cubic centimetres in a human subject produced swelling of the ocular conjunctiva with edema and marked pain in the eyeball. The symptoms disappeared rapidly when the injections were stopped.

Attempts at vaccinations were negative in result. During the two years only two of all the rabbits infected recovered. These received further large doses of virus and bore them well; but their *blood serum could not save or immunize any other animal*. This last fact serves to differentiate the myxomatous disease from the type of infections caused by micro-organisms.

¹ Presented as a preliminary note to the Ninth International Congress of Hygiene held at Madrid, April 10-17, 1898. Recorded in *La Reforma Medica*, Naples, April 25, 1898, vol. ii, No. 12, page 217.

MEDICAL NOTES.

YELLOW FEVER (?) AT KEY WEST.—Two cases of probable yellow fever have been observed among the crew of a prize taken off the coast of Cuba and sent to the harbor of Key West.

WAR APPROPRIATION FOR MEDICAL SUPPLIES.—About \$20,000 of the \$50,000,000 appropriated for the use of the President in preparation for war has been allotted to the Army Medical Department.

A LARGE BEQUEST TO THE MEDICAL DEPARTMENT OF MICHIGAN UNIVERSITY.—By the will of Mrs. Elizabeth H. Bates, of Portchester, N. Y., an estate of \$135,000 has been left to the medical department of Michigan University, to be devoted to establishing a Chair of Diseases of Women and Children.

DR. BRIGHAM'S CASE OF GASTRECTOMY.—Dr. Brigham writes with reference to the case of gastrectomy, the report of which was published in our issue of May 5th, that the patient has been constantly gaining since the report was in, and now weighs 126 pounds. She gets up at 5.30 A. M. and goes to church. "It is a curious thing," he writes, "that she was married to a Swiss and lived in Switzerland the first twelve years of her married life. Fortunately for me she came to this country, for Dr. Schlatter would certainly have had the case otherwise. She is apparently in as good health as any one—no one would ever suspect that she had undergone an operation."

BOSTON AND NEW ENGLAND.

ACUTE INFECTIOUS DISEASES IN BOSTON.—During the week ending at noon, May 18, 1898, there were reported to the Board of Health, of Boston, the following numbers of cases of acute infectious disease: diphtheria 29, scarlet fever 20, measles 79, typhoid fever 4.

A LARGE BEQUEST FOR THE STUDY OF CANCER AND TUBERCULOSIS.—By the will of the late Caroline Croft, daughter of the late Gardner Brewer, of Boston, the sum of \$100,000 has been left to be expended under the direction of Drs. Henry K. Oliver and John Collins Warren to encourage the discovery of some method of curing cancer, consumption and other diseases which are now regarded as incurable. The will provides that the income from the \$100,000 shall be paid to Dr. Oliver

"for services to be rendered by him and expenses to be incurred by him in making and prosecuting researches and investigations for the discovery and development of some remedy and means for cure for cancer, consumption or other diseases now generally supposed to be difficult or impossible of cure.

"At his decease, or inability, or unwillingness to carry on the work, the fund is to be made over to Harvard College, the medical department of which is to prosecute the work till a satisfactory cure shall be discovered.

"I design that the researches and investigations shall consist in part of the subjection to trial of medicines which may be extolled as specific or as possessed of marked efficiency in the disease for which a remedy is being sought, and, in case of such a medicine being a so-called secret one, of the analysis and subjection to trial of the medicine.

"I design that the researches and investigations shall still progress, notwithstanding any exemption from the disease which

may come of surgical interference so long as the exemption is merely temporary."

It is expressly declared that the purport of the bequest is not to promote the general purposes of the medical department of Harvard, but as a public charity, for the benefit of those who may be afflicted with the disease, or diseases mentioned. If the Harvard University authorities refuse to accept the trust then the fund is to go to the Massachusetts General Hospital for a cancer ward, in which a fair and impartial trial shall be given any remedy which may at any time be supposed to exert a marked favorable influence in cancer.

DEATH OF A CENTENARIAN.—Miss Anna Maria Benton, of Windsor, Conn., died last week after a week's illness, at the age of one hundred and one.

GRADUATION AT THE MASSACHUSETTS COLLEGE OF PHARMACY.—The Class of 1898 of the Massachusetts College of Pharmacy was graduated on May 12th, the thirtieth annual Commencement Exercises being held at the College Building. The graduating class numbered twenty-four. In the evening the Annual Dinner of the Alumni Association of the College was held at Young's Hotel.

AN EXAMINATION BY THE NEW HAMPSHIRE BOARD OF REGISTRATION.—The following notice has been issued by the Regent of the New Hampshire State Boards of Medical Examiners: "The third examination for licenses to practise medicine in the State of New Hampshire will be held at the State House, Concord, on Tuesday and Wednesday, June 21, 22, 1898, beginning at 8 o'clock A. M. All unlicensed physicians who were not in practice in this State on and before March 16, 1897, must pass the examinations in order to receive a license to practise legally their profession. Application blanks should be procured at once, as these papers must be filled out and in the hands of the Regent by June 15th. All information regarding the coming examinations will be cheerfully given by the Department of Public Instruction, State Library, Concord.

NEW YORK.

GRADUATION AT BELLEVUE.—The graduating exercises of Bellevue Hospital Medical College were held at the Carnegie Laboratory on May 8th, when diplomas were given to a class of 132.

THE MEDICAL DEPARTMENT OF CORNELL.—The new medical department of Cornell University has opened its school at the Loomis Laboratory, and all of the former faculty of the medical school of the University of the City of New York, with three exceptions, are said to have taken positions in it. The three members remaining with the latter are Dr. Egbert LeFevre, Secretary and Adjunct Professor of Medicine; Dr. E. D. Fisher, Professor of Mental and Nervous Diseases, and Dr. C. G. Coakley, Professor of Laryngology and Lecturer on Physiology. A large number of students have already been enrolled at the new school.

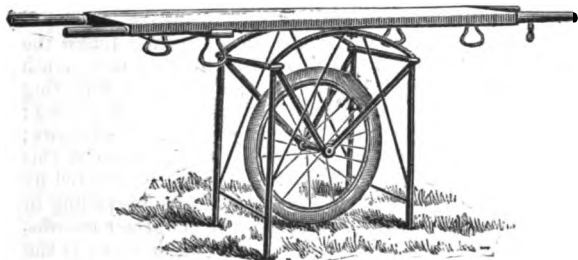
IN AID OF THE RED CROSS. — An entertainment for the benefit of the Red Cross Society was given at the International Health Exposition on the evening of May 14th. The principal address was made by Chauncey M. Depew, and a number of prominent clergymen and physicians took part in the exercises; among those who spoke being Drs. A. Jacobi and George F. Shrady. The wife of former Governor, Levi P. Morton, and several other patriotic ladies have contributed \$2,000 each for the construction and equipment of a first-class army ambulance, and it is expected that fifteen ambulances in all will be provided by the citizens of New York. A Red Cross Auxiliary has been organized among the different departments of Columbia University.

Miscellany.

THE REMINGTON LITTER-CARRIER.

IN the April number of the *Albany Medical Annals* appears an interesting article on "The Transportation of the Wounded in War," by James P. Kimball, A.M., M.D., Major and Surgeon, U. S. Army, in which a description is given of a recent invention by Mr. Frederic Remington, the artist, which the writer considers "by far the best adaptation of the wheel to the litter that has yet been made."

Mr. Remington, in his campaign experiences with the army on the frontier, has had an eye for the needs of the wounded soldier, as well as for picturesque scouts and warriors. The invention, which he calls a "Litter-Carrier," consists of a single wheel, and a framework to hold the litter. The wheel is twenty-four inches in diameter, and has a steel rim three inches in width, covered with a rubber band; within the rim is a V-shaped shield of wood, through which the spokes pass. The shield prevents the accumulation of mud or snow on the rim. The frame is made of steel tubing, upon which rest two three-leaved springs, placed twenty-two inches apart, so that the poles of the regulation litter may rest upon them. The litter is fastened to the carrier by a pin which is attached to the lower side of each litter pole, and passes through a hole in the spring, where it is made fast by a cross-pin. Folding



legs are let down to hold the carrier firmly in position when the litter is to be put on or taken off. The litter-carrier thus adjusted, with the litter placed upon it, is about thirty inches in height, and could serve on occasion as an operating table. When the carrier is in motion, the legs fold back and are secured by a simple device to the litter poles. The wheel is readily detached from the frame, and the whole can then be packed in small compass. The model which I have tested weighs thirty-seven and one-half pounds, but Mr. Remington is confident that the weight can be reduced to about thirty-pounds.

The litter-carrier is designed for two bearers, one of whom pulls, while the other pushes; but should one of the bearers become disabled it can be moved by one man alone. Over even ground the loaded carrier is moved with little effort; over rough ground the labor is not excessive, and the broad tread of the rubber-covered wheel and the elasticity of the steel springs make the patient's bed at least endurable, if not wholly comfortable. In case of necessity the carrier and patient can be lifted over ditches or other obstacles. I have tried the carrier under a variety of circumstances, up and down steep slopes, along side-hills, on unpaved roads and across fields, and find it admirably adapted to its purpose. In one of these tests of the litter-carrier a patient weighing one hundred and sixty pounds was carried without stopping a distance of one and one-twelfth miles, mostly over uneven meadow land, in twenty-two minutes, and without fatigue to the bearers. Over the same ground and distance the same patient was carried on a hand-litter in forty-six minutes; eleven minutes of this time were spent in necessary rest, and even then the bearers were very tired at the end of the course. For the long distances from the front to the dressing-station, Mr. Remington's litter-carrier promises to be of great value in lightening the labor of the bearers.

THE PLAGUE AND THE MECCA PILGRIMAGE.

THE International Sanitary Council in Constantinople has addressed an identical note to the Ambassadors pointing out the dangers which attach to the occurrence of plague in Jeddah, and to its existence in all probability outside that locality. It is pointed out that should the Mecca pilgrimage become infected, the public health of the Hedjaz, of Turkey, and of Europe will be endangered, and that this danger will not come to an end with the present year. The Council recommends that direct and energetic diplomatic pressure should be brought to bear on the Porte, in order that it may render fully operative the decisions of the Councils, and adhere strictly to the prescriptions of the International Sanitary Conferences of Paris and Venice. It further recommends the early convocation of a special International Sanitary Commission to carry out the above recommendations. The Council further implores the diplomatic representatives to urge the Ottoman Government to adopt without delay a sound system of sanitation in all towns of the empire, or at least (for the moment) in all the principal centres. The Council despairingly adds that the chances of effectually protecting the pilgrimage against infection are slender, for the execution of some of the measures necessary is wholly prevented, and others are rendered abortive, by the powerlessness of the Porte to enforce their application.

England has a peculiar obligation in this matter, owing to its position in Egypt. It is, as we conceive it, the bounden duty of the government of this country, in the interests of our commerce and of the health of Europe, to bring the strongest pressure to bear upon the Khedive to check, if we cannot wholly prevent, the movement of pilgrims from Egypt to Mecca. The experience of the Indian Government and of Russia has shown that it is quite possible to take effectual steps with this object in view. Time presses, and if some public announcement of the intentions of the British government is not made earlier, we trust that the matter may be brought to the notice of Parliament immediately after the recess. — *British Medical Journal*.

Correspondence.

[Special Correspondence.]

THE MORGUE IN PARIS.

(Concluded from No. 19, p. 459.)

BROUARDEL'S first word is an attraction. His voice is most agreeable and a new-comer is at once pleasantly impressed. As Brouardel proceeds one falls under the charm of his exquisite diction, of his harmoniously flowing phrases. He is a master of the French language, his every word is apt and lucid. Probably there is no other medical teacher in Paris who possesses to an equal degree Brouardel's fascinating gift of speech. His technical familiarity with every bearing of his subject is perfect, and his comparative illustrations, his memory of similar cases and his clear exposition of the anatomical, physiological or toxicological developments which follow the knife are presented in a graceful, unconscious genial flow of words which renders Brouardel the most charming of speakers. The attitude of the audience is one of intense listening. Note-taking is general. There is one woman present and she looks lonely. I have never seen more than a single female student at any one of these conferences and she was never the same. The men make place for her, but do not appear to realize that a woman is among them.

Specimens from the body in pans or pinned to thin slices of cork are passed about the class. The method of extracting information from such facts as become evident is shrewd and French. Not the slightest factor is neglected and the examination is thorough to the last degree. For this reason the cadaver is sometimes left in a condition almost of *débris*. In a search for contusions made evident only by subcutaneous hemorrhage I have seen a body longitudinally slashed literally into ribbons, and in one such case it was the very last cut which revealed the site of the injury. Even in cases in which the cause of death becomes quickly apparent every organ is removed and exhaustively examined. That is the unchanging rule. In the manner of conducting the autopsy, there are several departures from the Virchow method, variations which, so far as I know, are peculiar to the morgue. For example, some years ago at these conferences I observed that the skull was opened by means of a steel hammer provided with a sharp and sufficiently wide blade with which a circular cut in the usual locality was made by breaking the bone with this bladed hammer. The present method is to cut straight through skull and brain from the middle of the frontal bone to the occipital protuberance by means of a common hand-saw. This divides and crushes the brain in the path of the cut but does not in any way interfere with the necessary examination, the two halves of the brain being removed and sliced in the ordinary manner. This procedure saves time, no care being given to protection of the meninges.

The body is not opened by the longitudinal but by an oval incision, which, starting beneath the point of the chin and passing over larynx and trachea, sweeps across nearly to the left axillary line, follows this to just within the brim of the pelvis, pursues the pelvic curves across the lower portion of the abdomen, is carried up on the right side along its axillary line, sweeping back to the top of the sternum. The tongue, larynx and trachea are always removed with the lungs.

The ribs are cut along the line of incision and toward the sterno-clavicular joint by powerful bone forceps with arms twenty inches in length. All the abdominal muscles are removed, with sternum and anterior ribs, and thus a veritable cuirass is displaced, leaving lungs, heart, liver, stomach and intestines in full and normal view. The subsequent procedures are thus much facilitated, especially the exploration of the pulmonary cavity. The heart is divided, *in situ*, into halves by a cut through the ventricles at right angles to the longitudinal axis of the organ. The

use of a knife with thin, flexible blade twelve inches in length and narrow in its width is a great convenience in slicing lungs, liver and brain.

Brouardel is exceedingly neat and dextrous in the use of the knife, for, while he does not make the autopsy, he examines the organs as they are passed to him and explores the cavities of the body. I remarked that while the Monday and Friday instructors wear a blouse with long sleeves, Brouardel wears only an apron, not even removing his cuffs, upon which I have never seen a spot of blood or other liquid. His conference is held on Wednesday. Dr. Vibert holds the Monday conference and Dr. Descaoust appears on Friday. Naturally, Professor Brouardel is head and front of this course. His knowledge of legal medicine is profound, his manner of exposition bears evidence of rarest ability, and a listener regrets the termination of his hour. I should not forget to mention that all these instructors, and especially Brouardel and Descaoust, make strenuous effort to teach the students a careful manner of replying to questions in court, impressing upon them the danger of committing themselves by hasty, immaturely conceived statements, giving them every possible hint as to clever fencing with lawyers, who will try to entrap them by springing upon them queries suggested by the over-night studies of these advocates, and particularly with regard to the action of poisons. This is a striking feature of the course, and, touching all important points, is constantly recurring, until the listener becomes accustomed to the repeated warning: "Gentlemen, be careful how you give your opinion upon this question in court"; and then follows an explanation as to the wisest manner of bearing witness upon the point at issue.

In the course of the conferences are expressed opinions which have a curious — I may say startling — effect upon the Anglo-Saxon mind. For example: During the examination of the body of a man who had been shot by the jealous father of the girl who had wished to marry the victim, the father being jealous because his daughter has been his enforced mistress during the previous two years, the lecturer, no other than Brouardel himself, seriously and soberly impressed upon his audience his opinion, that a widowed father should not be permitted, under any circumstances, to live alone with an unmarried daughter. It would not be safe. Her virtue would certainly be corrupted, etc. In cases of all female cadavers above the age of sixteen years there never fails to be a sharp and critical examination of the hymen (if any there be), vagina, uterus and adnexa, with what may be seen to be a foregone conclusion that evidences of virginity will not be found. This portion of the autopsy and the many opinions pronounced and allusions made bear a *cachet* which is peculiarly French in its significance. There are autopsies which reveal most singular and interesting characteristics of the French life and mind. This is notable in the manner of death, both suicidal and homicidal. According to Professor Brouardel, methods of suicide follow the changes of the moon. For instance, during one month suicides seek death by the pistol; during the following month they adopt hanging; the next month drowning; then follows charcoal; then springing from high windows; then poison; and so on. Not only does there exist this variety of suicide, but the manner of death is affected by the season, certain methods of seeking death prevailing in the winter season, others being confined to warmer months. In connection with every case at the morgue there is the *dossier*, the history of the victim and the commingling of brutality, naïveté, selfishness, devotion, simplicity and cunning, easily weaves for the listener a vivid romance. If space allowed I would outline some of these stories together with their extraordinary pathological revelations.

Dr. Vibert, who addresses the class on Monday, is chief of the Anatomic-Pathological Laboratory, and a valuable member of the medico-legal force of Paris. He is active in all cases of sudden and criminal death. It was he who conducted the examination of the bodies burnt in the Bazar of Charity last May. As a teacher he is simple, solid, intelligent, but without grace. He makes the

autopsy with his own hands, aided only by a servant, who also takes the necessary notes.

Dr. Descoust holds the conference on Friday. He is chief of the Medico-Legal Laboratory — an apt, ready, keen-witted speaker, wholly *sui generis* in method and manner. His course is made peculiar by the fact that upon entering the room he at once calls for a student to make the autopsy, and this feature of his hour is amusing because of his facetiousness in inducing a student to come forward. There is always need of much urging, and this he does in a quaint, comical fashion, from which, however, there is no escape. If the student has not previously made a medico-legal autopsy so much the better for Descoust and so much the worse for the student. The latter removes coat and cuffs, assumes blouse and apron and begins the work, but not until all that can be gained, as to cause of death, from external signs has been thoroughly considered: The probable age of body, length of stature, probable occupation during life, significance of external injuries (if any), probable number of days since death occurred (judging especially by the condition of the eye), what the condition of the skin indicates, what the color of the nails presupposes, what is pointed out by ease or difficulty of removing hair from the body, indications of the stage of decomposition, etc. Nothing is neglected, and this chapter of the examination occupies at least one-third of the hour. If there be bullet-wounds, the student is required to pronounce on the probable distance of the pistol or gun from the body when discharged and the position of the individual who fired it. A prolonged description of the condition of the skin from impact of the ball and from effects of grains of powder, the shape and character of the bullet-hole then follows. The same care in case of knife wounds. If death occurred by hanging, the autopsy is not allowed until every possible indication that death was caused by the rope has been dragged from, or put into, the student's brain. The list is a long one, and I have known Descoust to spend forty minutes in awakening the student's mind to the probable condition of the capillaries of the skin, of the sterno-cleido muscles, of the carotids, the hyoid bone, the cartilages of the larynx, the vertebrae, the mucous membrane, etc. In case of poisoning by whatever agent, the disquisition is lengthy and exact.

These few illustrations will show the cases and precision of the examination. No new step is permitted until every previous one has been made perfectly clear. As the autopsy proceeds measurements, weights, colors, every slightest aberration from the normal, is observed and noted. All is made precise and scientific. In all suspected cases great care is taken in preservation of blood, urine, contents of stomach and specimens of various tissues for further examination elsewhere.

If the student be too previous in his diagnosis, he may expect no mercy; for, while Descoust is kindly and patient, he is exacting on all points and much anatomy must be learned by the officiating student who is exposed to Descoust's jovial but unsparing questions. Occasionally Descoust loses his equanimity and then reminds me of Wegner, of Berlin, whose sarcasm will be remembered by more than one of your readers. On one occasion, during a course of normal histology in which I was a student in (1872), Wegner was called by a German to look into his microscope. He did so, and then, straightening himself, he said with a *höhnisch* laugh and tone: "Das ist aber classisch. Wissen Sie was ich sehe? Ich sehe nichts als Baumwolle, Luft und Schmutz!" The student's embarrassment may be left to the imagination. In a similar fashion Descoust sometimes drops upon an unlucky student, but, unlike Wegner, he makes amends by some clever humorous remark which restores the equanimity of the student.

It was an unexpected, unusual, in fact laughable specimen which Descoust one day presented for examination, namely, a little, dry, shrivelled fetus of three months, and it was a most instructive and full hour which followed; for, the student found himself largely at a loss in his

attempts to decide the age of the fetus, its probable means of birth, whether the result of involuntary or criminal abortion, as to the significance of the anatomical conditions of the fetus, etc.

This is a proof of the thoroughness of the course; for one easily conceives the multitude of cognate questions which are evolved by every autopsy, and not one is neglected nor forgotten.

While it involves some trouble for a foreigner to obtain admission to these conferences, he would be the gainer if he secured the necessary card.

H. O.

RECORD OF MORTALITY FOR THE WEEK ENDING SATURDAY, MAY 7, 1898.

CITIES	Estimated population.	Reported deaths in each.	Deaths under five years.	Percentage of deaths from				
				Infectious diseases.	Acute lung diseases.	Diarrheal diseases.	Diphtheria and croup.	Cerebro-spinal men.
New York . . .	3,438,899	1218	418	9.92	18.24	.80	3.04	.72
Chicago . . .	1,619,228	—	—	—	—	—	—	—
Philadelphia . . .	1,214,256	445	128	—	—	—	—	—
St. Louis . . .	570,000	180	38	5.04	18.27	1.26	1.26	—
Baltimore . . .	550,000	190	73	6.89	24.57	.68	2.52	.63
Boston . . .	517,782	208	54	9.60	15.84	.48	1.92	2.88
Cincinnati . . .	405,000	139	—	2.88	10.80	—	—	—
Cleveland . . .	360,000	—	—	—	—	—	—	—
Pittsburg . . .	285,000	101	58	17.10	16.83	5.94	1.98	—
Washington . . .	277,000	90	26	10.00	22.22	3.33	2.22	3.33
Milwaukee . . .	275,000	—	—	—	—	—	—	—
Providence . . .	150,000	59	12	11.83	8.45	—	1.69	10.14
Worcester . . .	105,060	31	11	12.92	19.35	—	—	9.69
Fall River . . .	96,919	36	13	11.44	8.58	11.44	—	—
Nashville . . .	87,754	31	5	—	16.15	—	—	—
Lowell . . .	87,193	86	14	5.72	25.74	—	—	—
Cambridge . . .	86,812	27	7	7.40	25.90	—	3.70	—
Lynn . . .	65,220	—	—	—	—	—	—	—
Charleston . . .	65,165	40	15	15.00	15.00	12.50	—	—
New Bedford . . .	62,416	10	4	—	10.00	—	—	—
Somerville . . .	57,977	16	9	—	31.25	—	—	—
Lawrence . . .	55,510	17	7	11.78	11.76	—	5.88	—
Springfield . . .	54,790	12	2	—	16.66	—	—	—
Holyoke . . .	42,364	8	5	37.50	12.50	25.00	12.00	—
Salem . . .	36,062	18	1	—	11.11	—	—	—
Brockton . . .	35,853	10	3	20.00	—	—	—	20.00
Malden . . .	32,894	10	1	—	10.00	—	—	—
Chelsea . . .	32,718	7	2	—	—	—	—	—
Haverhill . . .	31,406	6	0	16.66	33.33	—	—	—
Gloucester . . .	29,775	—	—	—	—	—	—	—
Newton . . .	26,990	—	—	—	—	—	—	—
Fitchburg . . .	28,392	8	1	—	20.00	—	—	—
Taunton . . .	27,812	10	1	—	10.00	—	—	—
Quincy . . .	22,562	1	1	—	—	—	—	—
Pittsfield . . .	21,491	—	—	—	—	—	—	—
Waltham . . .	21,812	8	0	—	12.50	—	—	—
Everett . . .	21,575	2	0	—	—	—	—	—
North Adams . . .	19,135	8	5	—	25.00	—	—	—
Northampton . . .	17,418	—	—	—	—	—	—	—
Chicopee . . .	17,368	4	2	—	25.00	—	—	—
Brookline . . .	16,161	—	—	—	—	—	—	—
Medford . . .	15,832	3	1	—	33.33	—	—	—

Deaths reported 2,979; under five years of age 919; principal infectious diseases (small-pox, measles, diphtheria and croup, cerebro-spinal meningitis, diarrheal diseases, whooping-cough, erysipelas and fevers) 228, acute lung diseases 437, consumption 287, diphtheria and croup 56, diarrheal diseases 34, cerebro-spinal meningitis 30, whooping-cough 28, measles 26, scarlet fever 26, typhoid fever 20, erysipelas 9.

From whooping-cough New York 18, Boston and Cincinnati 3 each, Baltimore and Pittsburg 2 each. From measles New York 20, Pittsburg 3, Baltimore 2, Cincinnati 1. From scarlet fever New York 19, St. Louis 3, Boston 2, Baltimore and Lowell 1 each. From typhoid fever New York and Pittsburg 6 each, Baltimore and Boston 2 each, Washington, Charleston, Cambridge and Haverhill 1 each.

In the thirty-three greater towns of England and Wales, with an estimated population of 11,218,378, for the week ending April 30th, the death-rate was 18.4. Deaths reported 3,965; acute diseases of the respiratory organs (London) 274, measles 177, whooping-cough 140, diphtheria 66, fever 29, scarlet fever 28, diarrhea 27.

The death-rates ranged from 10.3 in Cardiff to 30.0 in Liverpool; Birkenhead 15.2, Bradford 20.3, Bristol 16.9, Gateshead 26.6, Hull 18.6, Leeds 18.6, London 17.2, Manchester 18.1, Newcastle-on-Tyne 22.4, Nottingham 13.9, Portsmouth 14.0, Sheffield 21.1, Sunderland 26.8, West Ham 15.5.

METEOROLOGICAL RECORD

For the week ending May 7th, in Boston, according to observations furnished by Sergeant J. W. Smith, of the United States Signal Corps:—

Date.	Baro- meter	Ther- mometer.		Relative humidity.			Direction of wind.		Velocity of wind.		We'th'r. *		Rainfall in inches.	
	Daily mean.	Daily mean.	Maximum.	Minimum.	8.00 A. M.	8.00 P. M.	Daily mean.	8.00 A. M.	8.00 P. M.	8.00 A. M.	8.00 P. M.	8.00 A. M.		8.00 P. M.
S.....1	30.00	58	67	48	51	59	54	N.W.	S.E.	12	5	C.	C.	.1 .0 .2
M.....2	30.08	50	54	46	78	77	78	E.	S.E.	7	7	O.	F.	
T.....3	30.14	44	47	42	96	86	91	N.E.	N.E.	10	10	R.	O.	
W.....4	30.12	44	48	40	81	79	80	E.	S.E.	12	6	O.	O.	
Th.....5	29.33	56	64	48	78	82	79	W.	S.W.	6	12	O.	R.	
F.....6	29.80	54	63	44	78	68	73	N.	N.W.	10	4	O.	O.	
S.....7	29.70	46	62	45	56	69	62	E.	S.E.	3	7	O.	C.	

* O., cloudy; C., clear; F., fair; G., fog; H., hazy; S., smoky; R., rain; T., threatening; N., snow. † Indicates trace of rainfall. — Mean for week.

OFFICIAL LIST OF CHANGES IN THE STATIONS AND DUTIES OF OFFICERS SERVING IN THE MEDICAL DEPARTMENT, U. S. ARMY, FROM MAY 7, 1898, TO MAY 13, 1898.

MAJOR EDWARD T. COMEGYS, surgeon, is relieved from duty at Fort Sill, O. T., and will report in person to MAJOR-GENERAL JOHN R. BROOKE, U. S. A., commanding Provisional Corps, Camp George H. Thomas, Chickamauga National Park, Ga., for assignment to duty as acting medical purveyor, for the supply of troops stationed at that point.

Acting Assistant Surgeon FREDERICK S. DEWEY, U. S. A., will proceed from Oklahoma City, O. T., to Fort Sill, O. T., and report in person to the commanding officer of that post for duty.

Acting Assistant Surgeon G. M. DE LA TORRE, U. S. A., is assigned to duty with the 10th Infantry, Tampa, Fla.

Acting Assistant Surgeon W. P. LAWRENCE, U. S. A., is assigned to duty with Light Battery B, 4th Artillery, Fort Tampa, Fla.

Acting Assistant Surgeons LLEWELLYN P. WILLIAMSON, FRANK METCALFE and RANDOLPH M. MYERS, U. S. A., will proceed from this city to New York City, and report in person to MAJOR GEORGE H. TORNEY, surgeon, in charge of hospital ship for duty.

Acting Assistant Surgeons EDWIN W. PATTERSON, U. S. A., and EDGAR A. VANDER VEER, U. S. A., will proceed from this city to Atlanta, Ga., and report in person for duty to MAJOR BLAIR D. TAYLOR, surgeon, in charge of the General Hospital, Fort McPherson, Ga.

Acting Assistant Surgeon F. A. E. DISNEY, U. S. A., will proceed from this city to Fort Jefferson, Fla., and report to the commanding officer of that post for duty.

Acting Assistant Surgeon WILFRED TURNBULL, U. S. A., will proceed from this city to Key West, Fla., and report in person for duty to the commanding officer, Company E, Battalion of Engineers, at that place.

Acting Assistant Surgeon EDWARD T. GIBSON, U. S. A., now at Minneapolis, Minn., will proceed without delay to Fort Yates, N. D., and report to the commanding officer of that post for duty.

A contract having been made with DR. CARROLL E. EDSON, of Denver, Col., for duty as acting assistant surgeon at Fort Logan, Col., he will proceed to that post and report to the commanding officer for duty.

CAPTAIN WILLIAM C. BORDEN, assistant surgeon, is relieved from duty with the 3d Infantry, in camp near Mobile, Ala., and will report in person to MAJOR WILLIAM R. HALL, surgeon, for duty at the General Hospital, Key West, Fla.

Acting Assistant Surgeon H. P. JACKSON, U. S. A., will proceed from Charleston, S. C., to Key West, Fla., and report in person to MAJOR WILLIAM R. HALL, surgeon, in charge of General Hospital, at that place for duty.

Assistant Surgeon CHARLES K. CUTLER, U. S. A., now Boston, Mass., is assigned to duty as assistant to the surgeon and examiner of recruits in that city.

OFFICIAL LIST OF CHANGES OF STATIONS AND DUTIES OF COMMISSIONED OFFICERS OF THE UNITED STATES MARINE-HOSPITAL SERVICE FOR THE FOURTEEN DAYS ENDING MAY 12, 1898.

PECKHAM, C. T., passed assistant surgeon. Granted one day's extension of leave of absence. May 4, 1898.

VAUGHAN, G. T., passed assistant surgeon. Granted leave of absence for six days from May 9, 1898. May 7, 1898.

STIMPSON, W. G., passed assistant surgeon. Granted leave of absence for seven days from May 17, 1898. May 11, 1898.

EAGER, J. M., passed assistant surgeon. Upon being relieved by Assistant Surgeon A. R. THOMAS, to proceed to Galveston, Tex., and assume command of Service. May 12, 1898.

THOMAS, A. R., assistant surgeon. Upon being relieved by Assistant Surgeon S. B. GRUBBS, to proceed to Cape Fear Quarantine, Southport, N. C., and assume command. May 12, 1898.

CUMMING, H. S., assistant surgeon. To report at Immigration Depot, New York, N. Y., for duty. May 12, 1898.

GRUBBS, S. B., assistant surgeon. Relieved from duty at New York, N. Y., and to proceed to Reedy Island Quarantine and report to commanding officer for duty and assignment to quarters. May 12, 1898.

RUSSELL, H. C., assistant surgeon. To proceed to Chicago, Ill., and report to commanding officer for duty and assignment to quarters. May 6, 1898.

BOARD CONVENED.

Board convened to meet at Washington, D. C., May 10, 1898, at 10 o'clock, A. M., for the physical examination of an officer of the Revenue Cutter Service: Surgeon P. H. BAILHACHEZ, Chairman, Surgeon GEORGE FUEVIANOR and Surgeon H. W. AUSTIN, Recorder.

SOCIETY NOTICES.

AMERICAN GYNECOLOGICAL SOCIETY.—This Society will hold its twenty-third annual meeting at Boston, May 24, 25 and 26, 1898. The meetings will be held at the hall of the Boston Society of Natural History, corner Berkeley and Boylston Streets. All physicians are cordially invited to be present.

MAINE MEDICAL ASSOCIATION.—The forty-sixth annual meeting will be held in Common Council Chamber, City Building, Portland, Me., Wednesday, Thursday and Friday, June 1, 2 and 3, 1898.

AMERICAN MEDICAL ASSOCIATION.

RAILROAD RATES.

The Western Passenger Association, Chicago, formally announces the following rates for the Denver meeting of the American Medical Association, June 7-10, 1898.

Rate.—One regular first-class normal tariff (not temporarily reduced), fare, plus \$2.00, for the round trip from Association territory to Denver, Colorado Springs and Pueblo, Col., and return.

Dates of Sale.—Tickets to be sold from Eastern Committee territory June 2, 4 and 5, and from Trans-Missouri territory June 5 and 6, 1898.

Limits.—On going, trip tickets to be good for continuous passage, commencing on date of sale up to first Colorado common point en route; stop-over to be allowed on going trip at intermediate Colorado common points, but to arrive at destination not later than June 7, 1898. The return to be continuous passage, beginning on date of execution by joint agent, with the provision that the return passage shall not commence earlier than June 12, nor later than July 6, 1898. Tickets may be executed for return at destination or either of the other Colorado common points en route. Purchaser to commence his continuous passage return journey from point of execution.

Diverse Routes.—For this occasion tickets may read, west of the Missouri River, going one route and returning another via any regularly authorized route, via which regular short line one-way rates are properly applicable.

RECENT DEATH.

JOSEPH STEDMAN, M.D., M.M.S.S., of Jamaica Plain, died at Watkins, N. Y., May 16, 1898.

BOOKS AND PAMPHLETS RECEIVED.

Injuries from "Live" Electric Light and Trolley Wires. By J. J. Brownson, M.D., Dubuque, Ia. Reprint. 1898.

The Pathology of Ante-Natal Life. An Address delivered before the Glasgow Obstetrical and Gynecological Society. By J. W. Ballantyne, M.D., F.R.C.P.E., F.R.S.E. Reprint. 1898.

Original Articles.

HYSTERECTOMY FOR REMOVAL OF LARGE UTERINE MYOMATA BY THE COMBINED VAGINAL AND ABDOMINAL METHODS.¹

BY DUDLEY P. ALLEN, M.D., CLEVELAND, O.

A PAPER read before the Medical Congress in Washington, last spring, by one of your most widely known surgeons, namely, Dr. Homans, suggested my subject for to-night. In his paper he discussed the whole question of hysterectomy, both vaginal and abdominal, together with the indications for, and the technique of, operation. This paper will be limited to the discussion of the technique of abdominal hysterectomy for uterine myomata. Though interesting to enumerate the steps by which the operation has reached its present advanced position, it would be out of place; and to discuss methods, which though the most successful of their time are now superseded by others, would trespass too long upon your patience. I shall, therefore, pass by all consideration of the extra-peritoneal, and of the older intra-peritoneal methods, and at once proceed to present what is, in my judgment, one of the best of recent operations. The method of which I speak is that of Doyen, of Rheims. The operation is, in a word, to open the abdomen, draw the uterus forward over the pubes, incise the vaginal vault through the Douglas cul-de-sac, draw the cervix upward into the abdomen, and without ligature to divide first one broad ligament, next the attachments of the uterus to the bladder, and last the other broad ligament, the broad ligaments being seized and held by assistants during the removal of the uterus and until their vessels can be secured and ligated.

As the value of any method must depend upon the success with which it enables the operator to avoid dangerous complications, it may be well to consider in the beginning the dangers attending the operation of hysterectomy. They may, in brief, be enumerated as follows:

(1) The exposure of the abdominal viscera incident to a large incision and prolonged operation. Since to remove large fibroids long incisions are necessary, any method which shortens the time of that portion of the operation taking place while the abdomen is open is of great value.

(2) Hemorrhage occurring during operation has two dangers. The first is that incident to all loss of blood. The second is, that if the Trendelenburg position is used, blood may gravitate toward the diaphragm, and increase the dangers of subsequent infection.

(3) Injury to the various viscera is by no means of rare occurrence. Ureters, intestines and bladder have, not infrequently, been injured.

(4) Infection of the abdominal cavity has ever been the bane of intra-abdominal methods, and the complete disinfection of the uterine cavity and vagina is so difficult as to make welcome any method which secures certain asepsis of these tracts.

(5) Drainage as a means of avoiding or escaping infection, should it occur, is of unquestionable benefit. If a method adds facility of drainage to its other advantages, it certainly enhances its value.

(6) Adhesions or hernia may result from leaving the pelvic floor uncovered by peritoneum.

Before discussing the operation of Doyen, by which the uterus is removed through an abdominal incision, I shall speak of a modification which seems to me of value in many cases. The modification is the division of the cervix from the surrounding tissues of the vagina as the first step in the removal of the uterus.

Among the dangers incident to abdominal hysterectomy, is that infection may take place from the vagina or the uterine canal, whether the uterus be amputated at the level of the internal os, or enucleated. Unquestionably the danger of such infection is not great, but its possibilities are by no means to be disregarded. The difficulty of thoroughly disinfecting either the vagina or cervical canal by means of douches or scrubbing is universally recognized. Unquestionably by care much can be done to avoid such infection. In a case of large sloughing fibroid, with a gangrenous mass the size of a fist extending into the vagina, I removed both uterus and cervix through an abdominal incision, without infection. The fact remains, nevertheless, that both uterine cavity and vagina are liable to be sources of infection.

After a patient is anesthetized, it is an easy matter in a few moments thoroughly to curette the cervical canal and pack it tightly with antiseptic gauze, and at the same time to disinfect the vaginal vault. When this has been done, the cervix, which has been seized by a strong pair of vulsellum forceps, is drawn downward. With a cautery the vaginal tissue about the cervix is divided, as is done in vaginal hysterectomy. After the entire cervix has thus been separated, it may be thoroughly cauterized. By this means the cervix is rendered absolutely sterile. The benefits of this procedure as a preliminary to opening the abdomen are twofold:

(1) Asepsis is secured with more certainty than by any other method.

(2) The division of the vaginal vault by the cautery is in most cases performed quickly and without hemorrhage. If the cervix be very short or difficult to reach, as is sometimes the case when the fibroid is developed in the lower part of the uterus, its separation by the cautery may be unusually difficult. It can, however, usually be accomplished.

This part of the operation requires less time than is often needed to control the bleeding which takes place when the vault of the vagina is divided through the abdominal incision. No attempt is made to do more than divide the vaginal vault. The abdominal cavity is not opened from below. A long pair of slender curved forceps is then used to seize the tissue just behind the cervix at the point at which it is divided by the cautery. The object of this pair of forceps is that when the abdomen is opened the forceps may be pushed upward into the Douglas cul-de-sac, and by marking absolutely the vault of the vagina, enable the surgeon with certainty and rapidity to open downward into the vagina. After the long forceps have seized the vaginal vault, the vagina is filled loosely with iodoform gauze. The gauze has clamped upon it another pair of forceps, so that it may easily be removed. The handles of both forceps are surrounded by sterile towels, so that when the long forceps are pushed upward into the Douglas cul-de-sac, to mark the point at which the vagina is to be opened from above, no infection may take place.

The question may arise whether valuable time is not lost by the vaginal part of the operation. To

¹ Read before the Surgical Section of the Suffolk District Medical Society, February 3, 1898.

this may be replied that the time required is short, and is more than compensated for by the certainty of asepsis, as well as by the increased speed of the remaining part of the operation. Having completed the vaginal portion of the operation, the patient is placed in the Trendelenburg position, the abdomen is opened, the enlarged uterus is drawn outward over the pubes, and the intestines are carefully covered with gauze, shutting them off from the air, and also preventing the flow of blood toward the diaphragm.

The advantages of the Trendelenburg position require no discussion. By pushing the pair of forceps in the vagina upward and cutting down upon them close behind the uterus, the vagina is quickly opened, and the loss of blood is so small that it may be disregarded. With a pair of long vulsellum forceps the posterior lip of the cervix is then seized, and drawn backward and upward into the abdominal cavity, when with a second pair of forceps the anterior lip is seized in the same manner thus securing a firm grasp upon the uterus. It is my custom at this point of the operation to tip the uterus toward the umbilicus, until with a single sweep of the knife the peritoneum is divided above the bladder. The extent of the anterior peritoneal flap is thus definitely determined, and the danger of cutting away too much in the latter part of the operation is avoided. The uterus is then carried again over the pubes. The operator takes in his left hand the forceps holding the cervix, and drawing the cervix upward divides all the tissues about it. While continuing to pull the cervix upward and backward, an assistant seizes the broad ligament on the side of the uterus opposite the operator, who quickly divides the broad ligament from below upward, the incision being, when possible, external to the tube and ovary, so that these remain attached to the uterus after the broad ligament is divided. Bleeding from the broad ligament is prevented by pressure made by an assistant upon the tissues as they are divided. The traction employed to draw the cervix upward and backward aids in separating the uterus from the bladder and ureters, so that a few cuts of the scissors are all that is necessary for this part of the operation. After the separating of the uterus from the bladder, the remaining broad ligament is divided, hemorrhage being controlled in like manner by the hand of the assistant pressing upon the vessels. The ovarian and uterine arteries are then ligated. Commonly a few ligatures are sufficient to control all hemorrhage. The speed with which the operation is performed is surprising to one who has never tried the method. The intestines, ureters and bladder are also easily avoided. Little time is lost in distinguishing what tissues are to be divided.

The advantages of this operation are (1) its speed, (2) the relatively small loss of blood, and (3) its safety. The method of closing the floor of the pelvis is a matter of choice. A running suture may be used to unite the peritoneum over the divided tissues, entirely closing the pelvic floor, or a small opening may be left to provide for drainage through the vagina. The long curved forceps used to mark the vaginal vault are not removed during the operation, but are allowed to remain in the vagina, that they may be utilized to seize the strips of gauze and draw them downward from the abdomen into the vagina. The upper extremity of the gauze strips is left even with pelvic floor. Ideal drainage is thus secured. The gauze may be removed on the second day after operation, with little pain and no disturbance.

It has seemed necessary thus briefly to sketch the steps of the operation that it might be more satisfactorily discussed. As proposed by Doyen, the operation is one of the most brilliant in surgery. When compared with the older extra-peritoneal methods, it amounts to a revolution. It marks an equally radical advance when compared with the older intra-peritoneal methods, since until within comparatively recent years, the extra-peritoneal methods have produced results quite equal to the older intra-peritoneal methods.

It is necessary, however, to compare the Doyen operation with the more modern procedure referred to by French surgeons as the American method, namely, the method largely in vogue in this country, of dividing first one broad ligament, next the cervix at the level of the internal os, and, lastly, the remaining broad ligament, seizing the main arteries as they are encountered. Although it is common by this method to leave the cervix undisturbed and the vagina unopened, the cervix may also be removed. The advantages claimed for the method are that if the vagina is not opened the dangers of infection are decreased. It is further claimed that the pelvic floor which remains is more secure. It is also said that by thoroughly cauterizing the cervical canal, there is additional security against sepsis, and that the cervical canal secures sufficient drainage.

The reputation of surgeons who practise this method of supra-vaginal amputation, and their success, is sufficient to place the operation upon a very high plane. It is difficult to settle the relative value of the two operations by statistics. Experience has shown, however, that infection through the cervical does occur in a certain number of cases. If it does occur, the cervical canal is too small to secure the most satisfactory drainage, and it would seem that this could be secured with much more certainty through the opening made by the removal of the entire cervix.

Although many who operate by the Doyen method entirely close the pelvic floor by a continuous suture, it has seemed to me wise, in cases in which there were adhesions, and in others in which there was extensive development of the tumor in the pelvis, to employ drainage. After the cervix has been removed, if gauze be used for drainage, it is removed with so great ease, and causes so little pain and disturbance that the added security gained by the use of drainage seems to more than compensate for its disadvantages. Beside the supra-vaginal method of performing hysterectomy and the method of Doyen there are many others.

Richelot dissects down, anteriorly, separating the bladder from the uterus, and ligates the uterine arteries on either side. He then opens into the vagina anterior to the cervix, seizes the cervix with forceps and draws it upward into the abdomen. The broad ligaments are then divided from below upward, much as in the operation of Doyen, save that the opening is anterior rather than posterior to the uterus, and the arteries are secured as they are divided, rather than controlled by pressure and ligated later.

Second, after dividing one broad ligament and ligating the vessels as they are encountered, opens the vagina and enucleates the cervix, and, lastly, divides the second broad ligament.

After trying the two methods, that of Doyen seems to me superior, since it is far more easy to open the vagina through the Douglas cul-de-sac than to do so between the uterus and bladder.

I have also made use of the operation, formerly so

common in Germany, of enucleating fibroids if sub-peritoneal and closing the cavity thus produced by sutures. Several cases operated in this manner have, however, died of sepsis, so that I early abandoned the method. The amount of blood lost is greater than by the operation of Doyen; and it is difficult to prevent the blood from flowing among the intestines, so that its complete removal is difficult if not impossible. Thus to enucleate several fibroids from the same uterus requires more time than to extirpate the entire organ; there is no opportunity for drainage; sepsis may occur from a chance connection with the uterine canal; and, lastly, there is no certainty that small fibroids which remain may not develop later.

In advocating thus a method of hysterectomy, it is not with the idea that it is superior to all others, and must be used in all cases. It behooves an operator to understand all methods, and be prepared to suit them to the existing conditions. There are, for instance, cases in which a fibroid develops itself in the posterior uterine wall, lying low down in the pelvis between the rectum and uterus. Such a tumor may so obstruct access to the vaginal vault as to render it impossible to cut down into the vagina through the Douglas cul-de-sac. In such cases I have enucleated the fibroid, after which it has been possible to proceed with the opening of the vagina in the usual way. Similar difficulties may be encountered with the development of tumors between the layers of the broad ligament, but these may also be enucleated and the uterus be extirpated later.

This paper has been limited to a discussion of the method to be used in removing the uterus when enlarged by fibro-myomata. Hysterectomy on account of inflammatory conditions will not be considered.

The advantage of the combined vaginal and abdominal method of performing hysterectomy may be summarized as follows:

(1) The vaginal part of the operation is performed while the abdomen is still unopened; and it is my belief that, inasmuch as this shortens the time required for the removal of the uterus after the abdominal cavity is widely opened, it is greatly to the patient's advantage. This is for the reason that the shock incident to prolonged operations in the abdominal cavity is often proportionally greater than in other operations.

(2) The division of the vaginal vault by the cautery requires but a short time, and is accompanied by little if any hemorrhage. This shortens the time required to control the bleeding, which often occurs when the vaginal vault is divided from the side of the abdomen.

(3) Owing to the fact that the patient is anesthetized, it is possible to curette, disinfect and pack the cervical canal and disinfect the vaginal vault. After dividing the vaginal vault, the tissues of the cervix may be thoroughly cauterized and the field of operation rendered sterile.

The advantages of the Doyen method of operation are:

(1) That the vagina is opened through the Douglas cul-de-sac with great speed, especially if the vaginal vault be already divided and the point of division marked by a pair of forceps in the vagina used to push the tissues upward.

(2) Having opened the vagina through the Douglas cul-de-sac by seizing the cervix and pulling it upward and backward, the remainder of the cervical attachments are very quickly divided; and since strong trac-

tion is used, the cervix and uterus are pulled away from the ureters and bladder, greatly lessening the danger of wounding these important structures.

(3) Since the operation can be performed with great rapidity and the hemorrhage is controlled by the pressure of the assistant's hand, it becomes necessary to tie only the chief arterial trunks, and no time is lost by securing smaller arterial branches or the same artery if divided by chance successively at different levels.

(4) Should drainage be indicated at the close of the operation, or should the subsequent development of symptoms of infection render it desirable, the pelvis can be drained easily and in the most efficient manner.

(5) The method secures a most satisfactory pelvic floor.

There are three great dangers incident to surgery. They are, (1) prolonged operation, (2) hemorrhage, and (3) sepsis. These dangers are overcome in a wonderful degree by the combined vaginal and abdominal method of performing hysterectomy for large fibroids.

THE ARSENIC IN THE MARSH CASE.

BY EDWIN J. BARTLETT, M.D., HANOVER, N. H.

ISABELLA A. MARSH and William Buzzell were tried at Montpelier, Vt., March 11 to April 5, 1897, for causing by poison the death of Isabella's husband, George A. Marsh. Both respondents were found guilty of murder in the first degree. Petition for a new trial, based on the exceptions, was denied by the County Court, and about a year later this decision was sustained by the Supreme Court of the State.

The trial was a notable one, from the gravity of the issue, the dignity of the judicial procedure and the ability of the counsel upon both sides. The State's evidence, massed and presented with persistent thoroughness, was contested with the most complete preparation especially upon technical points, and unflagging alertness.

OUTLINE HISTORY OF THE CRIME.

The Marshes and Buzzell lived in Northfield. Isabella was Marsh's third wife and he was her second husband; each had children by a previous union. Buzzell also was married, but not living with his wife. Mrs. Marsh, as shown in the evidence, had made no secret of her unhappiness with Marsh and her desire to be rid of him; in the meantime, however, the marriage compact was not interpreted too strictly. Buzzell, intimate with both, apparently enjoyed a husband's privileges without very serious protest from the legal spouse. In fact, the evidence of criminal intimacy was extraordinary in its openness.

Marsh had suffered more or less from poor health, and had consulted several physicians. His habits were not exemplary; and no one seems to have found any definite ailment, or really to have given satisfactory attention to the matter. On Thursday (January 23, 1896) he was well enough to be giving an exhibition of his strength and agility to some visiting peddlers, and on Friday in the night his last illness began.

Saturday morning Mrs. Marsh sent for Buzzell, who came to the house and remained till several days after Marsh's death, assisting in the most intimate way in such care as Marsh had and in all the funeral prep-

arations. A physician, promptly summoned, made seven calls and doubtless afforded Marsh some relief; but he did not discern the underlying cause of a puzzling illness.

Many neighbors were in and out, whose collective testimony makes apparent the sufferings of Marsh and the brutal and arbitrary nursing afforded him. He besought the doctor to put him out of his misery; he was tormented with thirst; he guessed no one would care if he did die; he begged his wife, "For God's sake go according to the doctor's directions." And the nurses varied the doses, shook him when he had "spells," took the feather bed from under him when they thought he was dying. Buzzell closed his eyes before he was dead; Mrs. Marsh, with unquotable language, refused the doctor's request for counsel. They neglected to send for Marsh's mother. When, however, the physician requested an autopsy, Mrs. Marsh refused that, "because she couldn't bear to have George all cut up."

One visitor, whose evidence the defence strove to discredit, described the administration by Buzzell of a small quantity of white powder, not of the medicines left by the doctor, about five hours before Marsh's death.

Marsh died about 1 A. M., Wednesday, January 29th, after five days of acute illness. Mrs. Marsh and Buzzell went off during the day; returning, they occupied together the room and bed in which Marsh died, then moved upstairs for a day or two. Mrs. Marsh's son and Marsh's two young sons testified to these facts.

Gossip seized upon the case; and the autopsy requested by the physician but refused by Mrs. Marsh became inevitable. She then said that she thought poison would be found in him, because he had been using some in horse medicine the day before he was taken sick. It was shown at the trial that Mrs. Marsh had attempted to buy arsenic; also a witness testified that she had said that "she was now going to get rid of George," and had asked how much arsenic it took to kill a man.

THE DEFENCE.

In defence it was urged that much of the State's testimony was irrelevant, since the respondents were being tried for murder, not adultery. Marsh's health was reviewed for two or three years, with the claim that serious disease existed, and it was urged that his symptoms and the findings of the autopsy were more consistent with Bright's disease than with arsenical poisoning. This view was furthered by the albuminous urine, the lack of fatty changes in the liver and kidneys, some confusion in the evidence as to the weight of one of the kidneys, and the rather slight inflammation of the gastric mucous membrane. The arsenic was not contested, but it was claimed that he had been despondent and had contemplated suicide. So, as his disease progressed and his sufferings increased, he may naturally have attempted to end his life by poison.

MARSH'S SYMPTOMS.

During his fatal illness he suffered from the sensation of a lump in his throat, from general distress amounting to agony, pain all over, severe and continuous vomiting, pain in the stomach and bowels, diarrhoea, thirst, great restlessness, slight "spasms," and toward the last slightly wandering mind. The temperature

was constantly normal. The pulse steadily increased in rapidity, being 70 to 85 Saturday, 90 Sunday, 100 to 110 Monday, 130 to 135 Tuesday.

THE PHYSICIAN'S TREATMENT.

The physician who made seven calls was naturally and reasonably perplexed. The Somerville cases, among others, show that without cause for suspicion arsenical poisoning does not necessarily reveal itself. This doctor first thought that Marsh had eaten something that disagreed with him, and washed out his stomach; later he thought the disease was grip of the bowels. He asked for a consultation, and finally for an autopsy, both of which were refused. That Marsh was suffering and that the doctor sought assiduously to reach the trouble is evident from the remedies employed during these five days. They were, grouped somewhat in the order of use: bismuth subnitrate, acetanilid tablets, soda water; morphine powders; washing the stomach out with warm water, soap and water injections, morphine and atropia hypodermically, opium and starch injections; dilute hydrocyanic acid, ice; bismuth, calomel, copper arsenite; digitalis, whiskey; tincture of opium all along.

THE EXAMINATION OF THE BODY.

On the 17th of February, nineteen days after death, Dr. J. H. Linsley, of Burlington, made a thorough autopsy. No cause of death was found, and, except as hereafter noted, no considerable lesion. Later he prepared and studied some fifty sections from the various organs, from which he furnishes the following summary of the more important findings:

Stomach. — The mucosa showed a more or less extensive necrosis. There was a granular deposit and a considerable amount of pigment both in the mucosa, in the glands thereof, and in the walls of many of the blood-vessels. There was a slight growth of delicate connective tissue in the deeper layers of the mucosa and in the sub-mucosa.

Liver. — There was a deposit of pigment about the intra-lobular vessels, a few areas of slight localized hepatitis, both parenchymatous and interstitial. The liver cells were otherwise normal. The capsule was normal. The blood-vessels were not unusually filled with blood.

Kidneys. — There was a slight hyperplasia of the lining cells of some of the Malpighian bodies. There was no apparent change in the glomeruli *per se*. The cells of the convoluted tubes were intact, and showed no morbid change. In the medullary portion of the organ there was some new growth (very slight) of interstitial connective tissue, although this had not, apparently, been extensive enough to have changed any of the lining cells of the tubules in the immediate vicinity of the neoplastic material. The blood-vessels in this part of the kidney were congested, and some infiltration of blood-corpuscles outside the capillary walls was noted.

Lungs. — The alveolar walls showed some thickening in places; the walls of many of the bronchi were thickened and infiltrated with lymphoid cells, and there was some desquamation of the lining cells. Some of the blood-vessels were filled with blood. The lower lobes were congested; the vessels in this part were greatly engorged with blood, and there were small and slight hemorrhages into many of the air vesicles. In one place the pleura appeared thickened and its blood-vessels congested. The pulmonary stroma contained the ordinary amount of black pigment.

Three days later, February 20th, Dr. Linsley delivered to the chemist in the presence of a witness the following parts of the body in well-sealed specimen

jars: (1) Stomach (unopened); (2) brain and spinal cord; (3) penis, testicles, ureters, bladder, rectum, prostate, portions of biceps, sartorius and humerus; (4) kidneys, lungs, diaphragm, spleen, heart, liver; (5) intestines, large and small, pancreas; (6) urine in bottle, originally 2½ oz., post-mortem.

The stomach, immediately opened and inspected by pathologist and chemist, contained 163 gm. (160 c. c., 5½ f. oz.) of a greenish-brown fluid in which floated two or three soft white masses. The organ was coated within with adhesive, brown-stained mucus, and the surface below the mucus showed irregular patches of moderate redness. Later yellow patches appeared.

The intestine contained a thin paste of yellowish-brown color. Its surface was also catarrhal, but no areas of special redness were observed. One hundred and sixty grammes of contents were collected with the aid of water, but it was not practicable to separate all the contents from the gut.

The rectum, about one inch within the anus, was streaked with red. There was none of the excessive inflammatory redness in the alimentary canal such as is often described and occasionally seen.

The urine contained albumin.

THE IDENTIFICATION OF THE ARSENIC.

By repeated mechanical separation 31 mgm. of white arsenic were obtained from the stomach and 32.8 mgm. from the intestines — almost exactly one grain in all. Microscopically, the particles were mostly irregular and broken; one in six or eight was distinctly crystalline. Compared with five available samples from different sources, it was evident that these particles might have had a common source with one of the samples, but were distinctly different from the other four. The samples were laboratory samples and stood in no relation to the case. The washed and dried particles sublimed without more than a trace of residue and with scarcely perceptible loss of weight.

Arsenic was also obtained from the gastric and intestinal contents by the general process of Fresenius and Von Babo as well as by Chittenden and Donaldson's modification of the method of Gautier. The last-mentioned process was also used for the separation of arsenic from the tissues — the liver, the kidneys, the urine, the brain, the muscle and the blood. The liver and the kidneys, though yielding different proportional quantities of arsenic, were in the same jar; the blood used was the small quantity of drainings in jar No 3, in which was the muscle, etc.; otherwise, there was no opportunity for diffusion after the autopsy.

For purposes of conclusive identification, the arsenic was converted into all of its familiar forms; the original oxide or the arsenic from the tissues giving the sublimed and crystalline oxide, the element reduced by carbon, the element reduced by hydrogen, the element alloyed with copper, the oxide sublimed from copper, the element with a zone dissolved with sodium hypochlorite, the chloride, the yellow sulphide from the chloride, the element, the oxide and the sulphide in the same reduction tube, copper arsenite, silver arsenite, silver arsenate.

In the whole investigation several hundred qualitative tests were made; the Marsh-Berzelius reduction was done 54 times; in all cases a portion of the liquid ready for the Marsh generator was tested by the method of Reinsch, with uniformly satisfactory results. Twenty-four exhibits were prepared.

THE QUANTITY OF ARSENIC.

The quantity stated as milligrammes of arsenious oxide was,

From the stomach mechanically	31.
From the intestine mechanically	32.8
In the stomach chemically	48.
In the intestine chemically	14.85
In the liver	28.14
In the kidneys	5.86
In the brain and cord	4.05
In the urine . . . . .	.375
	165.075

Or 2.54 grains from 7.15 pounds of material.

In this no account is made of the stomach and intestines themselves, but only of their contents, nor of the arsenic distributed in blood, muscle and other tissues. It could therefore be said that there was more than 2.54 grains in the whole body, but that it was not in the same proportion in the remainder of the body as in the parts examined.

The distribution of the arsenic — the milligrammes of arsenious oxide in 100 grammes of material, omitting that mechanically separated — is as follows:

Stomach contents	30.
Intestine contents	9.3
Liver	2.8
Kidneys	1.7
Urine . . . . .	.5
Brain and cord . . . . .	.26
Blood . . . . .	.20
Muscle . . . . .	.06

MORE ARSENIC.

After a preliminary report showing arsenic had been rendered, it appeared that bismuth subnitrate and copper arsenite had been among the remedies employed during the last few days of Marsh's life. Samples out of the same bottles were therefore obtained from the attending physician.

The bismuth was not quite arsenic free; one gramme (15½ grains) gave in repeated trials less arsenic than that in a .01 mgm. comparison tube, or less than $\frac{1}{8480}$ of a grain. A person taking fourteen pounds of this bismuth would get less than the equivalent of a grain of arsenious oxide, probably not in an absorbable form and certainly not separable mechanically. The scarcely visible quantity from 15 grains was exhibited in comparison with the heavy deposits from fractions of the various organs.

Of the copper arsenite $\frac{1}{3}$ of a grain was left by the doctor; if all was taken — which was probably not the case — it would be the equivalent of $\frac{1}{80}$ of a grain of arsenious oxide. But there was more than 125 times as much in the body. All the possible arsenic from this source was exhibited in comparison with that from $\frac{1}{10}$ of the liver, which it very closely matched and agreed with.

In the course of the preparation for the trial it seemed best to examine a certain undertaker's fluid. This consisted of zinc chloride and sodium arsenate. Extending somewhat this examination, it appeared that some arsenical fluids contain a microscopical sediment of transparent prismatic crystals, readily distinguished, however, from white arsenic; others, unfortunately, contain in their sediment white arsenic. The fluid in question was not used, and was therefore not a factor in the case. This is consistent with the scanty amount of arsenic in solution in the stomach; if, however, the fluid had been used, and all the arsenic in the tissues thereby explained, there would have remained, pointing to another source than this particular fluid, the solid white arsenic of the stomach and intestines.

A bag of white rubber — a "fountain syringe" — was presented for examination upon the supposition that it might have been an instrument for the injection of poison. Washings with distilled water gave faint traces of arsenic; scrapings and washings with dilute acid gave more; and destruction of the fabric of the bag gave marked arsenical mirrors. Other bags were tried with similar results. This was reported as valueless evidence, and was never used. Certainly a part, and very likely the whole of the arsenic came from the zinc oxide or other materials incorporated with the rubber by the manufacturer.

THE ADMINISTRATION OF THE POISON.

Aside from the evidence of the administration of a white powder, there are no definite facts as to quantity, time or mode of administration. The doctor left no white powders; the bismuth was suspended in water, the other substances were in tablets or dissolved. So much white arsenic as was found in the alimentary canal was undoubtedly administered as white arsenic, either dry or mixed with food or drink. It is a fair inference that one dose was administered prior to the sickness beginning Friday night, but the duration of the case, the continued opportunity, and the presence of the solid particles in the stomach after death, five days later, are more consistent with at least one other later dose.

A GRAIN OF ARSENIC IS NOT A SMALL THING.

The magnitude of a grain of arsenic is not as appreciable to the world generally as to those who deal with such quantities. With reference either to its effects on the human system, or to the methods of its detection, it is immense. A level teaspoonful of arsenious oxide weighs about 170 grains; if this quantity were divided equally among 600 or 700 human beings only a select and peculiar few would escape violent sickness; if administered in skilfully divided doses, without remedial measures, to 170 adults, many would doubtless die. A common analytical balance in the ordinary course of its use would weigh $\frac{1}{8}$ of one of these grains (.1 mgm.), and a better but not uncommon balance, $\frac{1}{100}$; if the grain were dissolved in 13 gallons of water and a teaspoonful of this liquid were put in a Marsh apparatus the resulting deposit (from .005 mgm., or $\frac{1}{20000}$ grain) is readily perceptible to the practised eye.

From such facts arises, too, the necessity for excessive and unremitting caution as to the chemicals used in such investigations. In the work described, after the rejection of two lots of "arsenic-free" zinc and one of acid, the materials were tested before each one of the fifty-four reductions.

DEATH FROM SANTONIN. — Death as the result of an overdose of santonin is a rare, possibly an unprecedented, occurrence, yet, according to the *Medical Press and Circular*, an inquest was rendered necessary a few days ago at Reading, England, on the body of a woman who had taken about two drachms of santonin for supposed worms, at the instance of an incautious friend. She became delirious and had "fits," which continued until she died. An autopsy revealed the fact that she was not suffering from worms, her abdominal symptoms being caused by an internal neoplasm.

IRIDECTOMY IN EXCLUDED AND OCCLUDED PUPIL DURING ACTIVE INFLAMMATION.¹

BY EDWIN E. JACK, M.D.,

Assistant in Harvard Medical School; Ophthalmic Surgeon to Out-Patients, Boston City Hospital; Assistant Surgeon, Massachusetts Charitable Eye and Ear Infirmary.

As far as I have observed, iridectomy, in cases of iritis with blocked pupil, is done only when the eye has become free from inflammation, the object being usually to make an artificial pupil for visual purposes; sometimes, though more rarely, in order to prevent further attacks of iritis. We all know the difficulty and inefficiency of medical treatment of iritis at this stage. Mydriatics do harm rather than good as their desired action is no longer possible and we wait patiently, relieving the pain, till the attack subsides. During this time sight is likely to be much impaired or lost. Pain and lost vision, are, however, not the only bad features of these cases. The longer the inflammation continues the less likely is subsequent operation for artificial pupil to be successful on account of the secondary changes which go on in and around the iris. These changes briefly stated are — atrophy of the iris tissue, occluded pupil, opacity of the lens, exudation behind the iris and around the lens and ciliary bodies, which later may go on to atrophy of the globe. My own experience in operating for artificial pupil in such cases is not an encouraging one. I have removed pieces of atrophied iris apparently entire but no vision has resulted and investigation has showed the pigment layer still clinging to the lens capsule. At other times the tissue has been so friable that only small shreds could be picked away, leaving a very unsatisfactory opening.

Some time ago a boy with a violent attack of iritis came under my care at the infirmary. The iris was much discolored, swollen and bombé, pain was intense. It occurred to me that there was nothing to lose and very likely much to gain by doing an immediate iridectomy. This was done under ether, the piece of iris coming out entire. Pain ceased very soon after the operation, and though the opening partially filled up again the iritis quickly subsided.

Since that time I have operated on two other cases. One of these was a lady, aged forty, who for many years had had attacks of iritis with severe pain. I was called during one of these attacks by her physician, with the idea of doing enucleation, as she was almost worn out with pain and had finally decided upon this radical step. The condition of the eye was that commonly seen in cases of blocked pupil. Iridectomy was advised and done without ether, the pain of the operation being severe but not much more so than what she had borne for some time. The relief was immediate and there was no return of trouble up to the time of her death, a year and a half later.

The other case was a man, aged fifty-seven, with incipient phthisis and with a history of repeated attacks of iritis for fifteen years. Both eyes showed the evidence of these attacks by numerous posterior synechiæ. The patient was having a fresh attack in o. d. with moderate pain; it had been going on for a month, with treatment, before I saw him. During the first two weeks of my observation he was fairly comfortable, but at the end of that time the pupil became excluded and very soon occluded, the iris bombé and

¹ Read at the March meeting of the New England Ophthalmological Society.

pain intense, completely prostrating him. Vision was reduced to the perception of moving objects at two or three feet. Iridectomy was done upward without ether. The iris immediately returned to its normal plane, the pain, though temporarily increased, requiring a subcutaneous injection of morphia, soon stopped. The opening did not fill up, allowing a vision of 0.1 some weeks later, which later still was certainly better, though no accurate test was made. Had I foreseen the good visual result in this case I would have done the iridectomy downward and not upward.

Of course three cases cannot serve as a definite guide for all similar ones; yet I think certain inferences can justly be drawn. The procedure is justifiable if only for the relief of pain, and one may reasonably expect it will do that. It will also, probably in most cases, cause the rapid improvement of the iritis and at the same time prevent those secondary changes which are in some cases destructive and which in others are a barrier to future successful operative measures. It is possible also that the operation may result in an immediate satisfactory artificial pupil.

A CASE OF SUB-HYALOID HEMORRHAGE.

The patient, a lady, aged forty, had never had trouble with her eyes in any way. A week before her visit to me the sight of the right eye became suddenly partially obscured and the next morning there was a practically total loss of central vision. In the macular region was a very large hemorrhage about three and a half to four discs diameter in height and breadth. The upper boundary was straight and horizontal, the lateral and lower boundaries were a curve, the whole like a flattened drop. The color of the patch around the curved border, especially below, was much darker than elsewhere, gradually getting lighter toward the centre and the upper boundary, showing evidently the settling of the blood to the bottom of the affected area. Just outside the border was a narrow rim of lighter red, and below were a few small striated retinal hemorrhages in the course of a vessel. At a point in the large hemorrhage corresponding with the macular was a glistening spot — almost the size of the usual macular reflex. No retinal vessels could be traced within the hemorrhage.

The patient was in good health, there was no renal or organic heart trouble. She had had slight uterine trouble, with occasional treatment, for twelve years, but it had never caused her serious inconvenience. Her only two children had died soon after birth of "heart trouble." Within the last three years she had menstruated but three or four times, the last being a day or two before the onset of the eye trouble. The flow was scanty, and unattended with any local or general disturbance; and, indeed, at no time had she had any symptoms attributable to the menopause. However, on account of this coincidence and the absence of other apparent cause, the menopause seemed the best explanation of the hemorrhage. Three weeks later the V. O. D. = $\frac{1}{2}$ %, the patch was less red, and the upper edge had a frayed appearance. Five weeks after this V. O. D. = 0.3 —, the blood had all disappeared, and the area looked normal, except that above the macula was a retinal disturbance in the form of a faint grayish-white band extending upward, the lower part being made up of fine round white dots. A little over a year later, the patient not being seen again till then, V. O. D. = 1 —, nothing to be seen in fundus except a

very few faint dark-colored dots which were grouped together.

The source of these hemorrhages, arterial or venous, has been disputed, the majority being in favor of a venous origin. The situation, too, though now accepted as sub-hyaloid, has been in the past thought to be choroidal or within the retinal layers. In the case reported the tendency of the blood to fall to the bottom, the complete covering of the vessels and the ultimate return to normal fundus and normal vision would seem to definitely point to a sub-hyaloid situation. In a case reported by J. Herbert Fisher in which a post-mortem was made, the internal limiting membrane as well as the hyaloid membrane had been stripped off.

For the many interesting points connected with this subject, — origin, situation, cause, etc., — I would refer to Fisher's paper in the "Royal London Ophthalmic Hospital Reports," Vol. XIV, Part II, which contain numerous references; also an article by W. P. Holmes Spicer, same reports, Vol. XIII, Part III.

Clinical Department.

INTRAVENOUS INFUSION IN A CASE OF UREMIA.

BY BUTLER METZGER, M.D.,
Ex-House Surgeon, Children's Hospital, Boston.

By the kindness of Dr. E. H. Bradford I am enabled to report the following case:

Wm. M., age six years, entered the Children's Hospital December 7, 1897. About November 1st the boy had an attack of what was thought to be appendicitis. This subsided, but ten days later he was taken ill with lobar pneumonia. After recovery was sent to the Children's Hospital for treatment of probable Pott's Disease with iliac abscess. On entrance there was a mass in the right iliac fossa, not tender; some stiffness of lumbar spine and spasm of lumbar muscles; no kyphosis. After a few days' observation a diagnosis of appendicitis was made, and this was confirmed by operation on December 22d by Dr. H. L. Burrell. The remains of an old appendicitis were found — pus adhesions, etc. Appendix could not be removed, and abscess cavity was drained.

After the operation the patient sank very rapidly, on account of frequent vomiting and inability to retain treatment either by mouth or rectum.

On the fifth day commenced to improve and gained steadily until January 15th. On that date complained of severe abdominal pain, a few hours later of lumbar pain. At 8 P. M. passed a few cubic centimetres of bloody urine. Examination showed much normal blood, a few small round cells and leucocytes, an occasional hyaline and granular cast. Vomited several times in the evening. Given diuretics and hot packs.

On the 16th passed 65 c. c. of urine; on the 17th, 65 c. c.; on the 18th, 150 c. c.; on the 19th, 40 c. c.; on the 20th, 10 c. c.

Examination of the urine practically the same as on 15th. Boy vomited on an average of once every ten minutes, night and day. Various means were tried to stop the vomiting, but without effect. Enemata of peptonized milk and stimulants given every

four hours, but patient steadily lost ground. Hot packs were freely used.

On the evening of the 20th the patient was in a very poor condition. Delirious and extremely restless; pulse weak; temperature 103°. At midnight seemed much weaker. At 2.30 A. M. the writer was called, and found the boy in a deep coma; limbs lax, respiration somewhat irregular, pulse slow but of good volume. As a last resort, the right median basilic vein was opened, and about ten ounces of blood allowed to escape. Twenty ounces of normal salt solution was then put into the same vein. In an hour the boy was conscious and rational. Nine hours afterwards the patient passed 100 c. c. of urine, and in the next five hours, 670 c. c. The next day passed 1,730 c. c., and the next 2,240 c. c. Condition showed an immediate improvement. His mind was clear; color and pulse good; and there was no more vomiting. On the evening of the 20th infusions of salt solution under the skin of the axillary folds were given, but without any apparent effect.

The ordinary therapeutic measures were given a faithful trial—that is, hot packs, digitalis, squills, etc. No tumor was ever felt in the abdomen. The bladder was usually empty (to percussion) and the kidneys could not be felt.

Condition of urine steadily improved, and on February 1st and 2d was negative.

The patient made a good convalescence, interrupted by an attack of varicella on February 8th, and was discharged well on March 8, 1898.

The case is reported as being of interest in regard to venesection and infusions of salt solution in certain cases of uremia where other therapeutic measures have been used without avail.

New Instruments.

A SEPARABLE TUBE FOR PACKING GAUZE INTO ABDOMINAL AND OTHER DEEP SINUSES.¹

BY W. A. MORRISON, M.D., EAST BOSTON.

In the treatment of certain cases of abdominal section, especially those primarily purulent, where the use of gauze drainage is imperative, considerable difficulty is frequently experienced in properly applying the gauze to the bottom of the cavity, especially at the second and subsequent dressings, which are done without the use of an anæsthetic.

This difficulty is due to a variety of causes, chief among them being the tortuous shape of the sinus, which renders it a matter of extreme difficulty to properly apply the gauze by means of ordinary dressing-forceps, and also to a relatively small external opening, making manipulation difficult; lastly, the sensitiveness of soft parts rendering the use of any force a matter of extreme discomfort to patient. The first of these difficulties is increased as healing of the wound progresses.

A most frequent condition occurring in the abdominal region is the formation of an abscess resulting from appendicitis, where constant drainage must be kept up until healing occurs. Here a sinus often burrows deeply in the pelvic region, and the proper application of an effective gauze drainage is frequently a matter of impossibility.

¹ Shown at the meeting of the Suffolk District Medical Society, February 3, 1898.

As a result of this improper drainage, an abscess frequently re-forms, rendering a second operation necessary and exposing the patient to its attending dangers.

A similar condition is present for the operation of the removal of pus-tubes, where complete asepsis cannot be maintained, and also in certain classes of deep abscesses of hip which have burrowed some distance from original point of infection.

Some months ago, after operating on a case of appendicitis in a boy of fourteen, these difficulties were experienced in a marked degree, and an attempt to obviate them resulted in devising an instrument which has, in several cases, produced admirable results. The instrument consists of a series of tubes of various sizes and in two shapes, straight and slightly curved at the point; each of these tubes is divided in the centre into two parts somewhat similar to a bivalve speculum, and with perforations at the extremity through which irrigation may be used if necessary. These tubes are closed at one end when the two parts are placed together, rendering the lower end of the tube smooth and rounded, thus preventing any injury to the tissues through which it is pressed. To prevent any lateral motion, there is a groove on one side into which fits a slight projection from the other.

It has been found desirable, in a limited number of cases, to have the tube slightly curved in order to more readily enter a tortuous passage. These tubes are made in three sizes, having an internal diameter of one inch, a half-inch, and a quarter-inch each.

In applying this instrument to the average sinus, it is passed to the bottom of the cavity, and through it the gauze is packed. When a sufficient quantity has been inserted, the gauze is held in place by moderate pressure, and each half of the tube which has been pressed apart is easily removed.

The tubes are made of brass and nickel-plated, and can be rendered aseptic by boiling in the usual manner.

By means of this instrument, perfect drainage of cases of this kind is established in a simple and effective manner.

Reports of Societies.

SURGICAL SECTION OF THE SUFFOLK DISTRICT MEDICAL SOCIETY.

PAUL THORNDIKE, M.D., SECRETARY.

REGULAR Meeting, Thursday, February 3, 1898, DR. H. L. BURRELL in the chair.

DR. W. A. MORRISON presented a

SEPARABLE TUBE FOR PACKING GAUZE INTO THE ABDOMINAL AND OTHER DEEP SINUSES.¹

DR. DUDLEY P. ALLEN, of Cleveland, O., read a paper entitled,

HYSTERECTOMY FOR THE REMOVAL OF LARGE UTERINE MYOMATA, BY THE COMBINED VAGINAL AND ABDOMINAL METHOD.²

DR. JOHN HUMANS: I am sure we are all of us under obligation to Dr. Allen for his very clear description of the operation of Doyen. I would say that the

¹ See page 492 of the Journal.

² See page 485 of the Journal.

French surgeons are ahead of us in vaginal surgery. They are far more bold, and they have a great deal of right on their side in saying that the vaginal operation can often be done for removing tubes or for extra-uterine pregnancy or for removing small ovarian tumors, and is attended with much less shock and much less danger of sepsis, as a rule, than the abdominal method. In hysterectomy for removing a fibroid, I almost always do the combined vaginal and abdominal operation. I generally begin by dragging forward the cervix, after the vagina has been thoroughly cleaned, the uterus thoroughly curetted and plugged with gauze, and sewed up, if you please, and the cervical canal burnt with the cautery. Each surgeon will use the method he likes best to render the vagina and interior of the uterus aseptic. I think the best way is to scrub thoroughly with ether soap, then with a bichloride solution, and then curette the interior of the uterus and paint it with pure carbolic acid or cauterize it. Then I make a circular incision around the cervix with the actual cautery. There is no bleeding. The upper vaginal flap is turned up with less loss of blood than when the knife is used. There are times when you cannot get the cervix down. I had one last week where the cervix was obliterated, nothing but a dimple in the mouth of the uterus up under the pubes, and it could not be got down. I do not think a man had better make up his mind always to make complete removal of the uterus, but to do what he thinks best in each case. I generally remove the uterus completely; but sometimes I leave, as I always did formerly, the cervix. Now it seems to me the great advantage of Doyen's² operation is this pair of forceps to seize the vaginal vault at the point on the cervix about where the peritoneum leaves the uterus to descend over Douglas's space onto the rectum. Then when you get the abdominal cavity opened, you feel down behind the uterus and an assistant pushes up the tip of the forceps, and you cut intelligently at once, without any embarrassment, and save a great deal of time. There is a surgeon in Australia who has an ingenious instrument I have often thought of imitating, with which he seizes the cervix with a pair of forceps which have a ring that slides over the cervix on which he cuts right round the neck of the uterus. It always seemed to me that this was a very ingenious device.

At times, when a fibroid has grown in the posterior part of the uterus and is firmly bound down by the peritoneum all round, it is necessary to divide the peritoneum, and it is impossible to drag the uterus forward upon the pubes until you have divided the fold of peritoneum called the broad ligament, or have enucleated the uterus, more or less behind. The method of Doyen of dragging up the cervix in the posterior part of the vagina and then trusting to an assistant's hand to hold the vessels, as one always used to do in amputation at the shoulder-joint, is something that I have not as yet tried.

I have used a pair of forceps in the manner suggested by Dr. Allen, to mark the point where I wished to open the vagina, with, I think, a great shortening of the time and great relief in deciding at once where to divide the vaginal wall. On the grounds of asepsis it would seem as if the vaginal part of the operation had better be done after the abdominal, but it is, I think, rather more awkward. If you do the vaginal

part first, you have your lines marked out through the mucous membrane of the vagina, even if you do not open the peritoneal cavity at first, and I think it would be rather more embarrassing to do the vaginal part after the abdominal. I generally am able to secure the uterine arteries, either through the vagina when I am opening it, or soon after I have opened the abdominal cavity, and have pushed down the peritoneum, separating the bladder from the uterus. I do not think we are planning this evening to go into the matter of the reasons for removing fibroids or the different methods of doing so.

This method of Doyen's I think an admirable one. I should think it would not be applicable to all cases, but to the majority. In regard to the total removal of the uterus; if you have got down to a very small neck and have everything tied, I should not do it, but should cut off the uterus behind this button of a neck (perhaps leaving a neck three or four times as thick as an ordinary finger-ring), and should thoroughly disinfect the uterine canal with the actual cautery. Now in this way we leave a complete pelvic floor without any division of the vaginal vault. When the vaginal vault is divided and complete removal of the uterus has been done, I always sew up the roof of the vagina without regard to drainage unless the operation has been septic; I do not see why you should not sew up the pelvic peritoneum as readily as you sew up the peritoneum between the umbilicus and the pubes; at any rate, I always sew it up and generally with silk. If I could trust catgut I would rather use it, because most of the patients after hysterectomy for fibroids, whether you do it one way or another, have a vaginal discharge—some of them for a year or more; and occasionally one discharges a silk ligature. I think that catgut, if you could be sure it was aseptic, would be better material to use.

I felt so strongly about this Doyen operation that this summer I said to my assistant, Dr. Pease, that either he or I must go over to France and see Doyen operate. He went, and was much pleased with the rapidity and skill with which the operation was performed.

DR. A. T. CABOT said that he had been much interested in the account of the combined operation, which Dr. Allen had described and discussed so fully that there was little to add. He said that he had himself not employed the operation for the removal of fibroids, but had used it in cases of cancer of the uterus with very great satisfaction, the advantage there being very great in that, by doing the vaginal part of the operation first, it was possible to thoroughly circumscribe the disease below, after which it could be approached from above with much greater hope of a thorough removal.

He said that in after-treatment he had sometimes sewed up the vault of the vagina and then joined the peritoneum above it. In other cases he had closed the peritoneum, leaving the vault of the vagina open, with gauze drainage established through it.

Dr. Cabot said that the operation for fibroids which he used by preference was the supra-vaginal amputation, and that in this operation he thoroughly cauterized the cervical canal, not only with the idea of destroying any septic material that might be there, but also with the idea of enlarging it so that any fluid which collected in the stump below the stitches might escape readily in the direction of the vagina rather

² Dr. Allen tells me that this manœuvre is his and not Doyen's.

than force its way out through the stitches into the abdominal cavity above.

He thought that the experience of Dr. Homans with the subsequent discharge of silk ligatures should lead us to make every possible effort to use animal sutures and ligatures. He said that he had used chromicized catgut, and had as yet had no ill results following it.

DR. ELLIOT: In discussing the modern hysterectomy operations we come down to pretty fine points, because all the operations claim and have great freedom from hemorrhage and great freedom from sepsis; in fact, these three different operations—vaginal hysterectomy, the combined method and supravaginal hysterectomy—are wonderfully perfected operations. The mortality in all three is down at least to five per cent., so that the differences are only slight; one is a shade better than the other in certain cases. The combined method, I think, has great advantages in cases of cancer of the uterus. As Dr. Cabot says, you can by this method get outside the disease with certainty *per vaginam*, and then take out the glands and tubes from above. For fibroids, my own idea, both from a theoretical and a practical point of view, is this, that what you want to do is to get out the fibroid; you don't want to take out anything else. If the cervix is of any use we want to leave it; and, as Dr. Allen has said, the American surgeons claim that the cervix supports the bladder and leaves the vagina intact. It certainly does. Now I have almost always done the supravaginal amputation for fibroids, and I am a very firm believer that that is the best operation, but I have listened with great interest to learn if any advantage could be gained by taking out the cervix. I have failed to be persuaded that there are any advantages in taking out the cervix, and even after Dr. Allen's exhaustive paper I feel the same way. He claims that by the combined method he can shorten the time of the operation. Now the operation of hysterectomy is so perfected that there is no anxiety about time. Vaginal hysterectomists claim there is no shock; and there is none. In supravaginal amputation there is almost never any shock. There is no bleeding. The gauze sponges are scarcely wet with blood. Now, if we can get equally good results without opening the vagina, why open the vagina? Also, from the aseptic point of view, I think it is an advantage not to open the vagina. In doing the combined method for cancer I have gone so far as to dissect out the cervix *per vaginam* up to the peritoneal cavity, pack that incision with sterile gauze and wait until the next day before doing the abdominal part. In this way I believe I can carry out a more perfect antisepsis. There is more danger of sepsis when we work near the bladder and rectum; in spite of the antiseptics, there is more chance of contamination than working from above. All the fibroids I have seen I have been able to get out by the supravaginal amputation. I think I have taken out the neck once or twice, but very rarely; and very rarely have I seen any shock or hemorrhage, and only once sepsis, which had a definite cause in a hospital case.

As to the cautery, I object to using the cautery in any operation unless it is shown to be of great advantage, for the reason that it leaves a slough which is non-living tissue, which is easily attacked by germs; and they are always present in spite of the best antiseptic precautions. I prefer when doing the combined method to sew up the vagina at once. This shuts off

the vagina and at the same time stops the hemorrhage, which Dr. Allen does with the cautery. I have had the difficulty that Dr. Homans speaks of. I do not like to sew with catgut, because there are so many lively little vessels around the vaginal vault, and the silk I have sewed up with I think has always or nearly always come out after several months. I suspect that probably at some point the stitch goes into the vaginal vault, or there is a crack which allows the vaginal secretion to reach the stitch.

DR. E. A. PEASE: Dr. Allen has so well described Doyen's method, I think very little can be added. The height at which Doyen puts the patient for vaginal hysterectomy was very interesting to me. The body is in the ordinary lithotomy position but is so raised as a whole that the vagina is directly opposite the operator's eyes when he is standing. In this way he gets a much better view of things than in our way of having the patient a foot or two below the eyes. Doyen's table is raised and lowered very quickly by means of a pedal at the base. He is a very rapid operator; twice I saw him do a vaginal hysterectomy for small fibroids in ten minutes. He is not so careful about the bleeding vessels as is Richelot, of whom Dr. Allen has just spoken. Richelot's method of abdominal hysterectomy is really safer for the patient than is Doyen's, so far as bleeding is concerned; for Richelot, instead of trusting the broad ligament to the hands of an assistant, clamps and ties each vessel; this latter procedure makes the operation a much longer one, however. Fibroids that we would think could be done only abdominally, Segond and other French surgeons would take out vaginally. I remember one particularly which had several lobes reaching above the umbilicus, and even this Segond removed from below, although considerable time was taken. He was very much helped by a long corkscrew which he had made for the purpose of twisting into fibroids and pulling them down vaginally as we pull them up abdominally with a similar instrument. In regard to the matter of leaving a part of the cervix, I think the question of malignancy must be taken into consideration, because in the first thirty cases I helped Dr. Homans do intra-peritoneally, two had cancers not known of beforehand, one in the body and the other in the cervix. If the person is young the cervix might often be left, whereas if the person is in the neighborhood of fifty it would better be removed, as a rule.

DR. HOMANS: In regard to the discharge of silk long after operation. I have never but once removed silk from the vagina which I had put in the abdomen at the time of the operation; but I have thought that the continuous discharges of pus or mucus for months and years was probably caused by the presence of ligatures.

DR. CUSHING: There are some observations which I take the liberty of making on this question. In the first place, in regard to the operation being particularly that of Doyen. I don't know how long he has been doing it precisely; but as far as opening the vaginal vault, bringing the uterus forward and separating the vagina and broad ligaments from the cervix as this is pulled up from the inside, I think that is Martin's operation, and I am pretty sure I have a paper at home in which he described and figured that before Doyen was doing it. Possibly, however, he may have taken it from Doyen. As far as having

something in the vagina to fix the part, that is Eastman's; Eastman invented a staff with a ring, and after that it was taken up by Chrobak, who perfected the operation along in 1891, before the total extirpation was much developed in this country except by Eastman. I do not think we ought to be too much under the glamor of French pelvic or abdominal surgery. Three years ago I took the trouble to go over to see the wonderful developments—and certainly there were wonderful developments—in vaginal hysterectomy, but I got a very strong impression that the reason they have developed vaginal hysterectomy so much is because they do not know how to do abdominal hysterectomy. At this time Richelot was operating by opening the vagina from above in front and then putting on clamps from below, doing practically Mary Dixon Jones's operation, which we had abandoned in this country, and when I described and figured on the board as well as I could the way it was done in this country by tying the arteries from above and removing the uterus, he was almost incredulous, but politely said he would try it, and I see he is doing it now. I tried to persuade Segond to use our American methods, and told him how Polk, Kelly and others were doing hysterectomy. He gravely said he would like to see it, and on my invitation he came over and was captivated by the American method and went back and published a paper on it. Jacobs, of Brussels, came over a year previously and told me he was completely astounded by the surgery he saw here and was going to adopt the American method of abdominal hysterectomy.

The operation of Doyen, as described, has the disadvantage, that, although it is beautiful to describe and a very showy and quick operation in the easy cases where there are no adhesions and where everything is clean, yet in the case where there is a myoma partly developed subperitoneally, where the myoma plugs the pelvic cavity so that it comes out like a cork out of a bottle, or in a case of subperitoneal myoma, or myoma complicated by salpingitis and adhesions, the operation cannot be done in that way. All the methods of hysterectomy which aim at excessive speed in removing the uterus do not shorten the operation finally. It takes just so long to tie all the vessels, and in my judgment it is better to tie the vessels as you go along going down—tie the ovarian, and then the uterine arteries, as you get to them, and not opening the vaginal canal until the last. I certainly never saw the assistant whom I should like to leave with the two hands holding the patient's uterine and ovarian arteries while I had removed the uterus. I don't think it is good surgery, when you can ligate the arteries, to put on clamps: something might happen. I think those who have done the amputation at the shoulder-joint with the vessels held by assistants wished they had them held in a different way. The uterus can be removed in a very short time; I have seen Kelly do it in four minutes, but it takes the best part of an hour to tie the vessels, sew up the vaginal vault or the stump of the uterus and put the patient to bed. In regard to cauterizing from the vagina and beginning that way, I also have my doubts. It is to be observed that the combined method was the way people began cautiously to feel their way in these cases, and Martin, as far back as 1887, described beginning below and finishing above, or beginning above and packing some gauze in the pelvis, closing the abdomen and then pulling the cervix down and

completing from below. If you cauterize, you certainly have a place you cannot conveniently sew together. Beginning with Chrobak's method of supra-vaginal amputation at the level of the internal os and cauterizing the cervical canal, I did some twelve cases in 1891 or 1892, all of which recovered. Then, taking up the method of total hysterectomy, I made all my hysterectomies total for a while, but finally I saw no good in removing the cervix if it was healthy. By leaving it you save time; it is a quicker operation and preferable, not merely for saving the vault of the pelvis, but because the cervix has certain very well-defined physiological uses and properties which I will not go further into here. It is worth saving, as careful questioning of those who have it or do not will prove [referring to sexual feeling during coitus]. If it is to be removed, however, it certainly is not an advantage to have a place which must slough. There is very little trouble about hemorrhage. There ought to be no trouble if the vessels are fastened one after another; after you have got your broad ligament divided the cervix will come up so that you can get at it, and then you cut the uterus out as the last step. Everything is tied, and you proceed to sew the two surfaces of the vagina together. I never have any trouble with catgut; have never used anything in ten years in the abdominal cavity but catgut, unless very fine silk in suturing the intestine. I never buy it; I always prepare it. It seems to me that the burning to save possible hemorrhage is unnecessary. You know where the hemorrhage must come from, only from the lower branches of the artery on the side below the uterine artery, which can be perfectly well picked up by forceps, and then you have nothing but the posterior vaginal artery, which can be fastened on the peritoneum. If you sew that whole opening in the vagina together there is no hemorrhage; therefore, I fail to see why this method of beginning with the cautery in the vagina should be a method particularly in advance of what we already have, and I think there are some disadvantages in working in the vagina. I never should want to do anything in the vagina and then go into the abdomen. As to the curetting, that can be left to an assistant; but when it comes to having him do so much more, especially picking up the uterine arteries, it is rather more than an assistant should be expected to do.

DR. ELLIOT: I omitted one important part of my discourse, and that was the treatment of the uterine canal. I began by boring out the cervix with the actual cautery and draining it into the vagina. Later I discovered that the canal is usually sterile, and I now use only a little pure carbolic acid to coagulate the secretion, so it will not pour into the abdominal wound; then the canal is sewed over. So far as the canal of a healthy cervix is concerned, I do not see why we should take that out expecting cancer any more than we take any other part of the body expecting cancer.

DR. HOMANS: I think the cases Dr. Pease referred to were cases of cancer in the middle of fibroid tumors discovered by Dr. Whitney on examination. Dr. Whitney reported that he found that two ordinary-looking fibroids when opened were cancerous in their interiors.

DR. GAY: I should like to ask Dr. Homans, or those gentlemen who have been doing this operation of removing the uterus entirely and also of leaving the cervix, as to what the late effects are; if there is any dif-

ference five or ten years afterwards whether the cervix was left as a cap to the vagina or not.

DR. HOMANS: I could not answer that question. I have never had any complaints from the patients either way. The mortality of removing the cervix has been very small; I should say not more than two or three per cent.; and the mortality the other way has been very small. I have not seen any of the nervous effects from removing the uterus; and so far as the functions of the rectum and bladder are concerned, I have had no complaints. I have several times had people come in to see me a considerable time after a fibroid has been removed and say this, "I think it is a pleasure to have had a fibroid, and to have had it removed, so to know how much better one feels after it is out."

DR. WALKER: I asked Segond and Jacobs about that point of removal of the cervix. Segond said he had had only one case of hernia, and Jacobs made a similar remark, but those cases I think had not gone more than five years after operation.

DR. ELLIOT: I find after total extirpation the vagina is usually much shorter and more resistant than normal. After supra-vaginal hysterectomy I have made a bimanual examination, and could not tell whether anything had been done. I felt something like a very small uterus. The feeling around the vault and the lateral cul-de-sac is softer and more natural and the vagina is longer than after total hysterectomy.

DR. CUSHING: I have questioned a large number of women, and I have never heard of any of the bad nervous symptoms Emmet and others have described. The women get in perfect health; but if they are married women, they are better off if the cervix is left.

DR. ALLEN: I fully appreciate the fact that I am speaking to surgeons of much larger experience than myself and those more entitled to an opinion; but so far as I have been able to understand none of them have performed the operation in the manner described. Perhaps it is not amiss, therefore, for me to suggest that the operation may have possibilities for one who has not tried it that he does not suspect. I think our opinions are largely based upon personal experience. A man may be convinced of the correctness of his conclusions, and later may change them. I was much impressed by an experience which I had eight or nine years ago. Dr. Bull, the President of the New York Academy of Medicine, asked me to read a paper before that body. I discussed the subject of abdominal drainage, taking the position that abdominal drainage was largely overdone, and that it would be much wiser, instead of draining all cases, to do a more perfect operation, more thoroughly control the hemorrhage, and thus render drainage unnecessary. Many of the prominent laparotomists of New York City were present, and every man on the floor disagreed with me, saying his success with drainage was such that he did not think he could give it up. I simply remarked later that I suspected they would change their opinion, and I feel, gentlemen, if some of you try the Doyen operation you will find it has advantages in certain cases. I did not say it was a universal method. I said it had many advantages, and was a method well worth knowing and worthy of application under certain circumstances. In the first place, Dr. Homans spoke of Doyen using the vaginal forceps to mark the vaginal vault at the point of division. I do not understand that this is a part of the Doyen procedure. At all events, if he uses it I have found no mention of it

in his writings. The method is, so far as I know, original with myself. Various instruments have been utilized to push the vault of the vagina upward. These have not, however, been clamped on to the vault of the vagina, and have the disadvantage that they do not mark it with absolute certainty. My method is to secure the forceps at the vault of the vagina, at the point of division. There is then no chance of mistaking the point at which one is to cut through the cul-de-sac into the vault of the vagina.

So far as closing the floor of the pelvis after operation is concerned, my remark was that it seemed wise to close it in most cases. There are cases in which there is a good deal of pressure in the pelvis, and others in which there are extensive adhesions. One thing I had in mind in recommending drainage in some cases was a remark Dr. Homans made in Washington, namely, that in one of his cases he had had an abscess which by good fortune discharged itself through the cervical canal. Drainage affords a safe method of avoiding the dangers of sepsis. If the cervix be removed it is a very simple matter to insert a gauze drain should sepsis be feared, or if the pelvic floor has been closed; should sepsis result from catgut, as has been suggested, or from other cause, it is a very easy matter to open the vault of the vagina and secure good drainage.

Dr. Cabot remarked that the hands of the assistant might be in the way in operating in the way I suggested. My experience has been that the hands of the assistants are not so much in the way as the tumor itself. If by a few cuts of the scissors the tumor be out of the way there is abundant room for the hands of the assistant. The method is not, as suggested by Dr. Cushing, to have one assistant hold both broad ligaments. There are two assistants, one on either side.

Dr. Elliot and others have spoken of the cervix supporting the bladder. Now I presume the cervix has a function, but when the whole uterus is cut away I question how great that function is. The results I have seen after the removal of the cervix have been satisfactory so far as both the pelvic floor and the vault of the vagina were concerned, and I have not been able to see that the cervix itself was of great benefit to the vault of the vagina after the uterus has been removed.

Contamination of the abdomen from the vagina is a thing hardly to be considered, nor is there danger lest the operator's hands become septic. One can do all I suggest during the vaginal portion of the operation and touch nothing but the ends of his instruments. The retractors hold the vagina widely open. All the operator does is with a pair of forceps to seize the cervix, draw it down, and then with a few sweeps of the cautery divide the vaginal vault close about the cervix.

So far as sloughing from the cautery is concerned, I have used the cautery a great deal in various vaginal operations and have not seen sloughing. If one uses a low degree of heat and burns slowly, he gets a slough; but if one uses a high degree of heat and burns quickly, the cautery controls the hemorrhage and does not cook the tissues and causes no perceptible slough. Although the hemorrhage comes chiefly from the ovarian and uterine arteries, my observation is that there is sometimes considerable bleeding from the divided tissues of the vagina. If this be controlled

before the abdomen is opened no time is lost later, and it seems to me of value to control this bleeding before we open the abdomen.

I have been quite interested in the remarks with reference to Segond. Segond went back from America to Paris and discussed what he called the American operation, but Segond has recently sent me a reprint which I have read with care. He has adopted the American operation in so far as the division of the broad ligament and ligature of the ovarian and uterine arteries are the first step of his operation, but here the comparison ceases. He enucleates the cervix, not from behind as Doyen, but by cutting down from the broad ligament into the vagina from the side, so that virtually he has gone back to the enucleation of the cervix, doing it from the side rather than from behind or in front.

In regard to trusting an assistant to hold the broad ligament, I think that is an imaginary objection. I trust my assistants to hold the broad ligament, and they hold it, and I have had no trouble.

In closing, I do not wish to be understood to say that this is an exclusive method, more desirable than all methods under all circumstances, nor to say that other operations are not of the very highest value; but I do believe that it is well to understand all methods and to turn to them when they are of advantage. Opening the vault of the vagina from below saves time, and when time is a consideration, has a very distinct value. By the Doyen method one can operate with greater rapidity than with any other with which I am acquainted. Time is certainly a matter of very great consideration in certain cases. A short time ago a woman of advanced age, with a badly diseased heart and an immense tumor — a most unfavorable case for operation — presented herself. No one would question that in a case of this sort it was of very great advantage to save time. The operation was not timed, but I venture to say that from the opening of the abdomen until the uterus was laid upon the table the time did not exceed five minutes. I do not believe by most methods the uterus could be removed so speedily. Certainly the combined operation has striking advantages, quite enough to merit for it careful consideration.

ASSOCIATION OF AMERICAN PHYSICIANS.

THIRTEENTH ANNUAL MEETING, WASHINGTON, MAY 3, 4 AND 5, 1898.

(Concluded from No. 20, p. 478.)

SECOND DAY. — MORNING SESSION.

DR. GEO. M. STERNBERG, of Washington, read a paper on the

BACILLUS ICTEROIDES (SANARELLI) AND BACILLUS X (STERNBERG).

Dr. Sternberg reviewed the work done in yellow fever by both Sanarelli and himself, and showed that the former in his recently published reports had in numerous instances misquoted him, and thus in his conclusions done him an injustice. He was inclined to believe that the two organisms in question were probably identical, and that it cannot yet be said definitely that either is the cause of yellow fever. He referred to the very slight differences that appear to exist between these organisms to-day, and explained them with the statement that the bacillus X originally

bore a stronger resemblance to the bacillus icteroideus, and that the present changes in the former might be due to the fact that it had for so many years been grown in an artificial medium. He stated that experiments are now being conducted in his laboratory to determine the identity of the organisms and also to determine the value of Sanarelli's agglutination tests. The results of this work will soon be published.

DR. A. C. ABBOTT stated that he personally believed that Sternberg's and Sanarelli's bacilli were identical.

DR. WILLIAM OSLER objected to the experiments upon men as brought forward so prominently in Sanarelli's paper, stating that to deliberately inject a poison of known high degree of virulency into a human being, unless you have that man's sanction, is criminal.

DR. THEOBALD SMITH, of Boston, presented an article on

COMPARATIVE STUDIES OF BOVINE TUBERCLE BACILLI AND OF HUMAN (SPUTUM).

Dr. Smith gave a *résumé* of studies upon fever cultures of tubercle bacilli from human sputum and of five cultures from cattle, reported his experiments in full and drew the following conclusions:

(1) The sputum cultures, with one exception, resembled one another closely in morphological, biological and pathogenic characters. The same is true of the bovine cultures, the differences between these two groups being sufficiently well marked to justify the establishment of two varieties. The coat cultures resemble the human, the cat and the swine culture the bovine variety, and the horse culture stood between the two in pathogenic power.

(2) The differences in the morphological characters of the bovine and the sputum variety are not sufficiently constant to warrant their use in diagnosis.

(3) The differences between bovine and sputum bacilli will probably enable us to determine more definitely the agency of cow's milk in the tuberculosis of infancy and childhood.

(4) Sputum bacilli are presumably not capable of infecting cattle spontaneously.

DR. SIMON FLEXNER, of Baltimore, read a paper on PSEUDO-TUBERCULOSIS HOMINIS STREPTOTRICHIA.

Dr. Flexner reported a case which presented the symptoms and physical signs of pulmonary and peritoneal tuberculosis. No sputum was obtained. The autopsy exhibited extensive, consolidated foci in the lungs, which resembled, in gross appearances, areas of caseous pneumonia, and nodules in the peritoneal cavity which were indistinguishable from true tuberculosis. The bacteriological examination revealed no tubercle bacilli, but a micro-organism in the lungs and "tubercles" which belonged to another genus, and for which the name of "streptothrix pseudo tuberculosa" is proposed.

DRS. S. J. MELTZER and T. M. CHEESMAN, of New York, read an article entitled

AN EXPERIMENTAL STUDY OF THE DIRECT INOCULATION OF THE SPLEEN WITH MICRO-ORGANISMS, AND A CONTRIBUTION TO OUR KNOWLEDGE OF THE IMPORTANCE OF THE LESION OF A BODY TISSUE FOR THE SETTLEMENT AND DEVELOPMENT OF BACTERIA WITHIN IT.

The authors state, that, as the final object of experimental infection is the introduction of the organisms

into the circulation, and as the different results obtained by the various methods heretofore employed are largely due to a mechanical factor, that is, the rapidity with which the organisms and their products are absorbed, it occurred to them that new characteristics in the forms of infection might be obtained from a systematic study of inoculations made primarily into one of the internal organs. The spleen was selected because, although its exact function is little understood, it seems to harbor the specific micro-organisms in certain of the infectious diseases. The experiments, which are published in full, were conducted chiefly on rabbits, and the inoculations were mostly of broth cultures of the bacillus coli communis. The following conclusions are drawn from the work:

(1) Cultures of bacillus coli communis, bacillus typhosus and staphylococcus pyogenes aureus when injected into the tissue of the normal spleen soon disappear from that organ, and, indeed, from the normal body generally.

(2) Bacteria injected into a spleen after the whole or a part of the vessels have been tied, multiply in the spleen with great rapidity and continue to supply bacteria to the blood, where in the healthy body they soon disappear.

(3) Bacteria injected into the spleen or subcutaneous tissue, or into the blood current through the ear vein, in cases where moderate lesions have been made by cauterization, or compression in the spleen, liver, kidney, uterus, peritoneum, or subcutaneous tissue, usually find lodgment in these lesions and multiply there.

(4) Even in cases where numerous foci existed from which the blood was constantly provided with a fresh supply of bacteria, but few bacteria were found at any time in the blood.

DR. W. H. WELCH stated that this contribution to the doctrine of *locus minoris residentia* is welcome because it confirms the view generally held by bacteriologists as well as by practitioners, and because it has recently been attacked by Rinne and others.

DRS. M. H. FUSSELL and A. E. TAYLOR, of Philadelphia, reported two cases of

ACUTE LEUKEMIA.

DR. WILLIAM OSLER, of Baltimore, read a paper on PARALYSIS OF THE LEFT RECURRENT LARYNGEAL NERVE IN MITRAL STENOSIS.

Dr. Osler reported two cases of mitral stenosis in which paralysis of the left recurrent laryngeal nerve occurred without signs of aneurism or intra-thoracic tumor. He referred to Ortnier's two fatal cases with this symptom, which he explains by pressure of the distended left auricle on the left recurrent.

AFTERNOON SESSION.

DR. E. G. JANEWAY, of New York, described

TWO ATTACKS OF TEMPORARY HEMIPLEGIA OCCURRING IN THE SAME INDIVIDUAL AS THE RESULT OF THE USE OF PEROXIDE OF HYDROGEN IN A SACULATED EMPYEMA (PLEURAL).

The case reported is as follows: Mr. B., aged forty-one, had, two years previously, developed a pleurisy on the left side, which had been aspirated. One and a half years after this event a swelling developed in the left lumbar region, which, when in-

cised, was found to communicate with a sacculated empyema at the base of the left lung. The patient had used peroxide of hydrogen to irrigate the sac. On the 25th of November, three and one-half months after the operation, two minutes after his customary use of the peroxide, and as he noticed it bubble inside, he felt very queer, became unconscious for a second, and found that his right arm and leg were numb and powerless. He did not lose the power of speech. This loss of power lasted for twenty-five minutes, and then passed away completely, leaving him as well as ever. Three days after this first attack he had an exactly similar seizure, the paralysis lasting as before twenty-five minutes. The sinus was found to have so far closed that no air nor fluid escaped after the introduction of the peroxide.

The author then refers to the two cases published, one by Leudet and the other by Forgue, and after a consideration of the physiological methods by which such symptoms might be produced, he concludes that the phenomena are best explained by supposing the hemiplegia to be due to an embolism of such a nature as to soon disappear. The only substance capable of thus acting would be either air or gas. Oxygen might be the agent when peroxide had been used as in the case recorded. He thinks the evidence all against the reflex theory.

DR. HENRY HUN reported a somewhat similar case in which the patient had been using peroxide of hydrogen to cleanse a sinus above Poupart's ligament, and which seemed to be due to caries of the vertebra. He thought it possible in his case that there might have been an opening through the vertebra into the spinal canal and the pressure might have acted directly upon the cord.

DR. V. C. VAUGHAN, Referee representing Physiological Chemistry, introduced a discussion on the question,

IS URIC-ACID DIATHESIS AN IMPORTANT FACTOR IN PATHOLOGY?

After going somewhat into detail concerning the composition of the nucleus of the leucocyte and studying the phenomena of chromatolysis, in which process uric acid is formed, Dr. Vaughan proceeded to study the origin of the alloxuric bodies in the body, as follows: It will be evident from what has already been given concerning the chemistry of nuclear substances that the alloxuric bodies can originate only when there is nuclear disintegration and then not until the nucleic acid is broken up. The solution and disintegration of nuclei is designated as the process of chromatolysis. Some of the conditions under which the alloxuric substances may be formed in the body may now be stated.

(1) Every nucleus comes from a parent nucleus. Every cell must at some period of its existence be nucleated. Biologically, the nucleus is that part of the cell which is essential to growth and reproduction. Many of the cells formed in the animal body are destined, after having reached a certain period of growth, solely to serve other cells, and these may, and some of them certainly do, lose their nuclei after having reached the stage of development necessary for them to reach before they can perform the function for which they are brought into existence. The nuclei, after having perfected the red blood-corpuscle so that it may serve as a carrier of oxygen, disappears,

the nuclein is broken up, alloxuric bodies are formed, and uric acid, the most highly oxidized of these substances, is the chief representative in the urine of the nuclear metabolism resulting as here indicated. As the formation of red blood-corpuscles is a continuous process, this source of the alloxuric bodies is a never-failing one.

(2) The leucocytes are a constant, but quantitatively variable, source of the uric acid and other alloxuric bodies.

(3) It has long been known that increased consumption of animal food increases the amount of uric acid formed in the body. This increase is probably due to two causes: (1) meat contains nucleo-proteids and alloxuric bodies in small amount; (2) digestion leucocytosis is greatest after meals rich in animal food, and is likewise increased by alcoholic beverages.

(4) The physiological disintegration of various nucleated cells in the body must contribute slightly to the formation of alloxuric bodies.

(5) Some poisons, such as lead and alcohol, stimulate certain cells to abnormal proliferation, and many of the rapidly forming cells break down and their nuclei suffer dissociation changes.

(6) Certain pathological growths are accompanied by marked cell proliferation, and, as above, this may be a source of uric acid in cases of carcinoma, etc..

DR. W. H. DRAPER, Referee representing Clinical Medicine, said: Those of us who have for years clung to the old sub-oxidation theory, which made the complex chemistry of the body so simple when we considered the final destiny of a nitrogenous molecule to be urea and one of the carbohydrates to be carbonic acid and water, are compelled to admit that the more the chemistry of the vital process of nutrition is investigated the more complex the problem becomes. We certainly are no longer justified in believing that uric acid is necessarily the penultimate of urea, because we can convert it into urea by oxidation in the laboratory, since recent investigations tend to show that it is derived from a special albuminous element, the nuclein in the nuclei of the white blood-cells, and it is asserted that uric acid and its allied bodies can be obtained from the destructive transformation of nuclein. Horbaczewski has found by actual experiment that drugs which increase leucocytosis are followed by an increase of uric acid, and, contrariwise, that drugs which diminish leucocytosis will diminish uric acid. Though we may be led to accept this evidence as to the nuclein origin of the uric acid, we must acquire more evidence than we now have to prove that it is the principal source of uric acid.

The chief interest, however, to the clinician, of these considerations as to the origin of uric acid lies in their bearing upon the elucidation of the widely accepted views as to their etiological relation to the subjective symptoms and objective lesions which are so generally ascribed in these days to the lithic-acid diathesis.

Since the demonstration of Garrod, fifty years ago, of the salts of uric acid in the blood serum of sufferers from gouty arthritis, there has been no question as to the fact, though there has been infinite discussion of its true relation to the nature and determining cause of the process by which the paroxysms were produced. Two well-ascertained facts embarrass us: (1) we know that uric acid may accumulate in the blood, temporarily at least, and not produce gout; (2) we know that gout may occur without any positive evidence in the blood

serum that there is an excess of uric acid, or in the urine that there is an undue elimination of it. These facts and others which might be mentioned have driven the advocates of the uric-acid theory to invoke the aid of the nervous system to supplement its defects and explain the pathological process. As a result, we have now what has been called the neuro-chemical theory, which perhaps better than any other correlates the diseases which pass under the name of gout and rheumatism.

The differential diagnosis of the diseases just mentioned has always been, and still is, a puzzling problem to pathologists and practitioners; and it may be said that there is nothing absolutely common to them all, except what we may call arthritism, a common seat in the structural tissues of the joints and contiguous fascia and tendinous appendages, or, in a word, in the connective tissues wherever found. In regard to gout we have a pretty general consensus as to the recognition of uric-acid blood state as a coincident but not invariable element. In regard to acute inflammatory rheumatism, in which we have discovered no special blood dyscrasia, since we have discarded as unproved the lactic-acid theory, authorities are now inclined to reckon it among the specific infectious fevers. As between these apparently most distinct forms of articular inflammation, we must conclude that the only common basic relation is the anatomical one, and the only reason to suppose that these diseases are in any way related lies in the fact that in those who are exposed to these affections for some cause inherent in the individual, hereditary or acquired, these structures are especially vulnerable.

The experience of clinical observers in what, I think, we might call for convenience, arthritism, tends towards the acceptance of the view that gout and rheumatism are in some way allied. In support of this assertion I would first instance the mixed forms of gout and rheumatism in the same individual, in different individuals in the same family, in the greater liability of the men to true gout and of the women to rheumatism, in the common recurrence of gout and rheumatism in the children of gouty parents for which there seems to be no other explanation than a special vulnerability of the joint structures along with an extreme susceptibility to atmospheric changes, to certain errors in digestion, and perhaps to the invasion of particular pathogenic infections.

DR. JAMES TYSON, Co-Referee representing Clinical Medicine, continued: I regard that person as the subject of the uric-acid diathesis who secretes habitually a scanty, high-colored urine, of high specific gravity and decided acid reaction, a urine which promptly deposits, either at the temperature of the body or at a slightly lowered temperature, a copious sediment of uric acid and mixed urates, to which oxalates may be added. Such a urine may contain a trace of albumin and even a few hyaline casts. I do not say that this constitutes the uric-acid diathesis. It is rather its sign, or perhaps one of its consequences, whence we may infer its presence. It matters not from the clinical standpoint whether such a person ingests more uric acid, manufactures more uric acid within his organism, or does not take in enough water to hold the uric acid in solution, he is the subject of a condition which produces the result.

The most manifest of the results of this diathesis is the tendency to uric-acid gravel and uric-acid calculus,

a result so commonly recognized that it is scarcely necessary to make any extended reference to it.

(2) It is, however, true of the uric-acid diathesis that it means something more than a scanty urine readily depositing urates and uric acid. Whatever it is, while of a less tangible character, it leads to some results that are scarcely less tangible than gravel and its effects, and one of these is gout.

(3) As undoubted in my own mind as that gout is the result of uric acid is it that the uric-acid diathesis is frequently responsible for an idiosyncrasy in which depression of spirits is a constant symptom, and extreme modesty, a want of self-reliance, moodiness, irritability and bad temper are a part of the same condition.

(4) That uric acid is responsible for certain cases of migraine I am also ready to admit.

(5) Vertigo in most distressing forms is also at times a result of the presence in the blood of the alloxuric bodies, it may be alone or associated with other symptoms.

In all these conditions, save lithiasis and gout, and possibly in the latter also, I believe that the offending uric acid, or allied substances, are operating in solution through the blood, it may be in concentrated solution, but nevertheless in solution.

Dr. Tyson then asks, Does uric acid produce rheumatism as something distinct and separate from gout? Does it produce sore throat, asthma and bronchitis? Does it produce glycosuria and diabetes? He proceeds to answer all of these questions save the last in the affirmative and in regard to diabetes says, that, while the two disorders may exist simultaneously and may be the result of the same cause, that cause is not uric acid in the case of glycosuria.

DR. C. A. HERTER: Perhaps I may be permitted to say a few words with reference to certain observations made during the past seven years in regard to the excretion of uric acid in health and disease. In these observations the Ludwig-Salkowski method was exclusively used because of its exceeding accuracy. The first thing that struck me of importance was the fact that the majority of healthy adults upon a mixed diet showed no very wide variations in the excretion of uric acid as compared with the excretion of urea, the average proportion ranging between 1 to 60 or 1 to 40, while there is a large class who excrete very much more uric acid than this without presenting anything characteristic in their clinical condition. There is nothing particularly characteristic about a distinct increase in uric-acid excretion, and no reason for connecting it with any particular clinical form of disease unless it be some digestive disorder.

The idea has been referred to that it is characteristic of the uric-acid diathesis for patients to excrete a small amount of urine of high specific gravity and high acidity. That is true in many cases, but not characteristic, for the amount of uric acid may be increased in urine that shows quite opposite features. An increased amount of uric acid in the urine is no evidence of an increase of uric acid in the blood. It seems upon the whole likely that there is a certain relationship between leucocytosis and the increase in excretion of uric acid, but there are some difficulties in the way of accepting the Hombachewski theory just as it stands. I have studied the blood of animals, and never found any increase of uric acid there even after removal of the kidneys, a fact that remains to be harmonized with this

theory. Repeated examinations of the blood in various conditions of disease have failed to reveal any actual increase of the uric acid in the blood; and in the absence of such evidence it would seem to be going out of the way to charge these conditions to uric acid.

DR. A. H. SMITH: It seems that this discussion illustrates the error we are likely to fall into when we endeavor to make the results of reactions in the test-tube tally with the reactions that take place in the body, leaving out of the question the problem of vitality.

Early in my life I adopted the idea that uric acid in the body was due more to the ingestion of the carbohydrates than to nitrogenous food, and my clinical experience has tended to confirm that view. One of the worst cases I ever saw, a case in which spontaneous amputation of the big toe took place, had been under treatment by drugs for a long time, but absolutely recovered in a few months by use of a diet similar to what we would use for cases of glycosuria.

A number of years ago I undertook to study the relative output of urea and uric acid of patients who were getting an unusual amount of oxygen by inhalation, and my results seemed to support the sub-oxidation theory.

DR. J. H. WRIGHT, of Boston, made a

REPORT OF A CASE OF MADURA FOOT.

Dr. Wright reported a case of mycetoma, or madura foot, of the melanoid variety, and the black granules which are so characteristic of the affection were found to consist essentially of a fungus growth. Pure cultures of this fungus were obtained, and the organism is one of the hyphomycetes, and is therefore not closely allied to actinomyces as has been thought by some, for the latter is now recognized as a streptothrix.

By the aid of the lantern Dr. Wright described the morphological peculiarities of the parasite and the histological lesions produced by it.

THIRD DAY. — MORNING SESSION.

DR. A. H. SMITH, of New York, read a paper on

ANTITOXIN TREATMENT OF PNEUMONIA.

Dr. Smith, after describing the preparation of pneumonia antitoxin, and giving an account of its action upon animals, summarized all the work on this subject that has been published up to date and gave a brief résumé of results obtained by different observers.

DRS. WILLIAM H. WELCH and V. C. VAUGHAN both stated that there is at present no scientific experimental basis for this antitoxin. They referred to the difficulties in discovering even a toxin in this disease, and showed that the immunity experiments so far were of such limited value that there is little promise of making it of therapeutic use.

DR. STOCKTON referred to the belief that the degree of leucocytosis has something to do with the crisis in lobar pneumonia, and reported a case illustrating this theory.

DR. W. S. THAYER stated that his experience had been that there was much difference in the way leucocytosis behaved in relation to the crisis, and he was more inclined to believe that the fall in leucocytosis depended rather upon the rapidity with which the lung consolidation cleared up.

THE BACTERIOLOGY OF CHEESE.

DRS. V. C. VAUGHAN and J. T. MCCLYMONDS reported a large number of bacteriological examinations upon all varieties of cheese. They had found pathogenic bacteria in all save a very few old foreign brands. Although numerous organisms were found, one specific bacteria seemed to appear in nearly all the examinations. The inference seemed to be that the fresher and the poorly made cheeses contained the most organisms and were the more dangerous.

DR. W. H. THOMPSON, of New York, reported

A CASE OF CHRONIC INFECTIVE ENDOCARDITIS, WITH STREPTOCOCCI FOUND IN THE BLOOD BEFORE DEATH; TREATED BY ANTI-STREPTOCOCCUS SERUM; AND EXPERIMENTS ON THE EFFECTS OF INJECTIONS OF SERUM AND OF ANTITOXINS UPON THE KIDNEYS.

Patient, aged thirty-six, male, affected for seven months with definitely periodical daily attacks of an intermittent fever, ushered in by chilliness or by pronounced rigors. At other times he would have attacks of severe, periodical neuralgias in the forehead and in the left hypochondrium, without rise of temperature. No recent cardiac lesion could be demonstrated on account of a loud murmur due to congenital malformation of the right heart obscuring other heart-sounds. He never showed ecchymoses or other local lesions which would point to infective endocarditis, but an examination of the blood drawn from the median line showed the presence in it of numerous streptococci pyogenes. He was then treated with injections of anti-streptococcus serum with no benefit, his rigors increasing in severity, and death finally supervening, with symptoms of acute nephritis and suppression.

Though his urine had shown previously both blood and albumin after several attacks of rigors, yet the renal symptoms increased so rapidly after the injections of the streptococcus antitoxin that to test the effects of serum injections on the kidneys, as well as the seemingly beneficial effects of injections of normal saline solutions in the renal suppression of this patient, experiments were performed on eleven dogs.

These experiments on dogs were followed by ten check experiments upon rabbits on the same lines, and tabulated results were given of the conditions found in the urine and in the kidneys.

DR. J. E. GRAHAM reported two cases of septicemia treated by antistreptococcus serum with recovery.

DR. W. S. THAYER spoke of the similarity of the temperature curve in this affection to that of quotidian fever, but believed that the differentiation could always be made by the more exact periodicity of paroxysms in the malarial chart, by the larger count of red blood-corpuses in septicemia, and by the action of quinine, which he regards as an absolute specific for malaria.

STUDIES OF ANTITOXINS FOR TUBERCULOSIS.

DRS. E. L. TRUDEAU and E. R. BALDWIN, of Saranac Lake, described their attempts to produce an antitoxic and curative serum for tuberculosis, and to test on animals the efficacy of serums already produced.

The paper is divided into two parts. The first describes the authors' methods and attempts at producing an antitoxic serum in various animals—sheep, fowls, asses and rabbits—as well as the tests used to study experimentally any germicidal or curative properties

supposed to have been developed in such serums. The second part is devoted to tests on animals of the antitoxic power of the serums obtained by the authors, and of some other serums already in the market, or furnished to them for experiments. The work extended over four years, and the observations were made on four sheep, three asses, 12 fowls, 18 rabbits and 450 guinea-pigs.

The results obtained showed that in one or two of the serums tested, a slight degree of antitoxic power may have been present, while in all the others the tests were negative. In none of these tests could any germicidal or curative influence be demonstrated.

The writers feel that in the light of recent contributions made by Ehrlich, Wasserman and Behring to our knowledge of the mechanism of immunity and antitoxin production in the body, the outlook for an efficient tuberculosis antitoxin is by no means a hopeless one.

THE EFFECTS OF FREEZING ON DIPHTHERIA ANTITOXINS.

DR. H. C. ERNST, of Boston, found that upon freezing diphtheria antitoxin for a period of from two to eight days it separated into several layers of different density; and on testing the immunizing power of these different layers, it was determined that the upper layers had lost nearly all of their antitoxic properties, whilst the lower layers had greatly gained in power. The freezing seems to have the power of throwing down the antitoxic element.

DR. VAUGHAN asked whether in the total amount of serum in the tube there had been any loss of antitoxic property.

DR. ERNST replied that this could not be determined with absolute accuracy, but that there seemed to be no such loss.

The regular programme having been concluded, the annual election of officers was held, resulting in the choice of the following: President, Dr. J. Baumgarten; Vice-President, Dr. E. G. Janeway; Recorder, Dr. I. Minis Hays; Secretary, Dr. Henry Hun; Treasurer, Dr. W. W. Johnston; Councillor, Dr. J. C. Wilson; Representative on Executive Committee of Congress of American Physicians and Surgeons, Dr. William Osler; Alternate Representative, Dr. C. F. Folsom.

The following papers were read by title:

"Chronic Interstitial Nephritis," by Dr. I. N. Danforth, of Chicago.

"The Diffuse Infiltrating Form of Secondary Melano-Sarcoma of the Liver," by Dr. L. Hektoen, of Chicago.

"A New Pathogenic Pigment-producing Bacillus," by Dr. H. C. Ernst, of Boston.

"Neuralgia Paresthetica," by Dr. J. H. Musser, of Philadelphia.

"The Renal Form of Enteric Fever," by Dr. James C. Wilson, of Philadelphia.

"A Chapter in Peripheral Pathology: the Circulation in the Feet," by Dr. Morris Longstreth, of Philadelphia.

"Some Usually Overlooked Physical Signs in Chest Diseases," by Dr. N. Bridge, of Los Angeles.

"The Micrococcus Subnormalis," by Dr. Samuel A. Hopkins, of Boston.

"A New Pathogenic Chromogenic Bacillus," by Dr. F. P. Gorham, of Boston.

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THE REPORT OF THE ROYAL COMMISSION
UPON TUBERCULOSIS, 1898.

A PERUSAL of this document shows very conclusively that the Royal Commission appointed in 1896, which has just made its report, has taken a very different view from that of the Massachusetts Legislature now in session, which has practically withdrawn State support from the State Cattle Commission.

This is the third British Commission which has been appointed to make investigations in regard to tuberculosis. In 1888 a Departmental Committee was appointed to inquire into pleuro-pneumonia and tuberculosis, and that committee reported that there was little doubt that tuberculosis of cattle was infectious and also dangerous to man.

In July, 1890, a Royal Commission, composed equally of physicians and veterinary surgeons, was appointed to inquire and report what is the effect, on human health, if any, of food derived from tuberculous animals, and, if prejudicial, what are the circumstances and conditions with regard to the tuberculosis in the animal, which produce that effect in man. That Commission reported that, as the result of feeding and inoculative experiments, it was shown that the disease was interchangeable with that of man; that the meat of a tuberculous cow was seldom dangerous, if well cooked, but that the milk from a cow with a tuberculous udder must be regarded as dangerous.

Among the noted members of the present Commission are Sir Herbert E. Maxwell, Chairman; Dr. Richard T. Thorne, of the Local Government Board; Prof. G. T. Brown, veterinary adviser of the Board of Agriculture, and Shirley F. Murphy, Medical Officer of Health of London.

The Commission was instructed "to inquire what administrative procedures are advisable and would be desirable for controlling the danger to man, through the use as food, of the meat and milk of tuberculous

animals; and what are the considerations which should govern the actions of the responsible authorities in condemning for the purpose of food supplies, animals, carcasses, or meat exhibiting any stage of tuberculosis."

Some of the recommendations contained in this report will commend themselves to sanitarians, the more so as their adoption would protect the public against other diseases than tuberculosis. The provision of public slaughter-houses, the inspection of all meat slaughtered elsewhere than in public slaughter-houses and brought into the district for sale, the inspection of all animals immediately after slaughter in a public slaughter-house, and the requirement that in future no person shall be permitted to act as a meat inspector before undergoing a qualifying examination on the law of meat inspection, the names and situation of the organs of the body, signs of health and disease in animals and carcasses, and the conditions rendering fresh meat fit or unfit for human food, would still be essential for the protection of the public, if tuberculosis were stamped out. So long as it exists they are doubly essential. The same remarks apply to the recommendations that in future no cowshed or stable should be permitted or registered in urban districts within 100 feet of any dwelling-house, and that the conditions of the attached cowsheds that should warrant the registering of a dairy in a populous place should include (1) an impervious floor, (2) a sufficient water-supply, (3) proper drainage, (4) a depot for the manure at a sufficient distance from the stables, (5) a minimum cubic contents of from 600 feet to 800 feet for each adult beast, (6) a minimum floor space of 50 feet for each adult beast, and (7) sufficient light and sanitation. It is almost impossible to exaggerate the importance of stringent provisions of this character for the regulation of the keeping of animals in populous places, and the necessity for proper regulations on this subject is in no way dependent upon, although it may be well illustrated by, the dangers which result to the human race by the consumption of the carcasses of animals that have died of tuberculosis and the milk of animals suffering from that disease.

So far as these recommendations have for their object the prevention of the consumption of diseased meat, the report points to the conclusion that they can be better justified on general grounds than on the ground of special risk of the spread of tuberculosis through meat. The Commission are unanimously of opinion that this risk has been very greatly overestimated; and the only evidence which they have been able to find in support of it is that afforded by the results of certain artificially contrived infections of meat made for the purposes of the previous Royal Commission on Tuberculosis, which evidence, as they point out, was "the outcome of deliberately contrived laboratory experiments admittedly carried out under methods involving a risk greater than any which would probably arise in ordinary trade procedures." On the other hand, the Commission entertain no doubt that the corresponding danger from

milk-supply from tuberculous animals is far greater; and they practically confirm the opinion expressed by the former Commission that "no doubt the largest part of the tuberculosis which man obtains through his food is by means of milk containing tuberculous matter." The main reason for this is that the cooking of the meat to a great extent destroys the infected matter; and that the bulk of the milk in England is consumed in a raw state—a statement which applies quite as well to the United States, but not to the Continent of Europe. The Commission state that "it has been proved over and over again that milk from tuberculous udders, and even milk which has been purposely contaminated with tuberculous matter, can be rendered harmless by being boiled for one minute"; but it is hopeless to expect that the public will take this simple measure of precaution. What precautions can then be taken by the State to protect the public?

At present, it appears that in England local authorities are powerless in this matter. The Commission, while reporting that the system of meat inspection is unsatisfactory, go so far as to say that milk inspection, in relation to tuberculosis, is still more so, and that, indeed, it may be said not to exist; and yet it has been proved to the satisfaction of the Commission that tuberculosis prevails to a larger extent among dairy stock than in any other class of animals; it is easier to see the defect than to suggest any adequate remedy. The difficulties in the way of any effective inspection of the milk-supply of a large town are enormous. The vast bulk of the milk must come from outside the town, and the inspection must, therefore, mainly be in the hands of outside authorities. The Commission, have, however, seen their way to make certain practical recommendations with a view of dealing with this danger. They recommend that power should be given to local authorities to take samples and make analyses from time to time of milk produced or sold in their districts, and that milk vendors should be required to supply information as to the sources from which their milk is derived. They further recommend that at ports where milk and milk products are received from any foreign countries any costs that may be thus incurred in their examinations should be borne by the importers. If these recommendations are adopted, investigations by medical officers of health, as to the spread of infection by milk supplies, will be greatly facilitated, and the knowledge that this will be the case may lead, it is thought, to increased precautions being taken by the milk purveyors to secure their milk from infection. The Commission also recommend that notification of every disease in the udder should be made compulsory, under penalty on the owners of all cows, whether in private dairies or those of which the milk is offered for sale. The objection to this measure is that tuberculosis of the udder can rarely be differentiated from other forms of udder disease by the ordinary stock owner or dairyman. It would also involve additional inspection by the rural authorities; but, on the other hand, it might materially

improve the quality of the milk supplies, afford protection against other infection than that from tuberculosis, and possibly assist in preventing the spread of tuberculosis amongst the cattle. The remaining recommendation of the Commission under this head is that local authorities should have powers to inspect all cows kept for supplying milk within their jurisdiction, and to proceed against any owner who retains any cow "which suffers from tuberculosis or any disease which might render the use of such milk dangerous or injurious to health."

In view of the great difficulties in the way of any effective inspection of milk supplies, it is satisfactory to notice that there is reason to hope that bovine tuberculosis may be very considerably reduced by other means. Any attempt to stamp it out by slaughter the Commission regard as quite impracticable, apart from the cost, which would be intolerable; but they state that the Danish Government has been remarkably successful in eliminating the disease from herds by the adoption of tuberculin as a means of diagnosis, separating the sound from the suspected animals, and feeding the calves exclusively on boiled milk. By the adoption of these means, tuberculosis has been practically eliminated from badly infected herds in Denmark. Some members of the Commission themselves visited Denmark in the spring of last year for the purpose of investigating the working of the system which has been so successfully adopted in that country. In this, as in so many other matters connected with dairy farming, the Danes set an example worthy of imitation. The Danish Government supplies tuberculin gratuitously to farmers, on the condition that the healthy animals shall be isolated from those which are tuberculous; and, in addition, it gives the services of a veterinary surgeon to superintend the operations necessary in carrying out the test in a scientific manner. The annual cost is £5,625. For this sum the Commission estimate that 50,000 animals could be submitted to the same test in England. If the test were applied to all the cattle in the United Kingdom the cost, it is stated, would exceed a million sterling; but the Commission are of opinion that there is not the slightest probability of anything like this demand at first on the Imperial exchequer; and they suggest that after the system had been established for, say, five years, it might be considered how far stock owners might be called upon to contribute to this form of insurance. The Commission therefore recommend that funds be placed at the disposal of the Board of Agriculture and the Veterinary Department of the Privy Council in Ireland, for the preparation of commercial tuberculin, and that stock owners be encouraged to test their animals by the offer of a gratuitous supply of tuberculin and the gratuitous services of a veterinary surgeon on the following conditions, namely, that the test be applied by a veterinary surgeon; that tuberculin be supplied only to such owners as will undertake to isolate reacting animals from healthy ones; that the stock to be tested shall be kept under

satisfactory sanitary conditions; and more especially that sufficient air space, ventilation, and light be provided in the buildings occupied by the animals.

CONTAGIUM VIVUM.

THERE has been a general conviction that all the infectious diseases are due to the multiplication and diffusion of living parasites in the organism affected. This has been proved true of many virulent diseases whose microbic origin is now known; and is logically inferred of others whose pathogenic agent is still unknown. It was long ago shown that the analogy is complete between the viruses which produce measles, small-pox, diphtheria, etc., and the living agents of the respective fermentations; all are capable of unlimited self-propagation. Are there any chemical poisons, not of an animated, figured nature but of a soluble kind which produce similar results? This question has been generally answered in the negative, although some competent authorities have surmised that the viruses of canine rabies and of snake-bites are soluble ferments of the nature of ordinary toxic neurotic agents (strychnia, atropine, etc.), but unlike the latter in their ability to multiply themselves in the blood and tissues indefinitely.

Sir James Fayrer inclined to the opinion that snake virus is a poison of the nature of ptomaines, a proteid capable of transforming the plasma of the blood and tissues—through contact, it may be—into proteids like itself, though Pasteur and others believe an unknown microbe to be the cause.¹ Weir Mitchell and Reichert² maintain that there are two distinct classes of poison in venoms, both represented in all venoms, only differing in relative proportions and slightly in chemical and physiological properties, that they are proteids and closely related to principles normally existing in mammalian blood.

At a recent medical congress, Sanarelli, of Montevideo,³ called attention to the difficulties which attend the general proposition that virulence constitutes a vital function of micro-organisms. There exist numerous transmissible affections whose microbe is still unknown, and which present at the same time certain peculiarities by which they are distinguished from the ordinary type of an infectious disease. To this group belong canine rabies and syphilis. He has recently observed and studied an affection of the same kind supervening spontaneously in hares in his laboratory at Montevideo. A statement of his published observations was given in the last issue of the JOURNAL. Sanarelli, from numerous experiments, concludes that the virus of this myxomatous disease is a chemical poison and not an organized ferment. Filtration through porcelain does not diminish its power; this is exalted by successive transmissions through hares;

it is more resistant to antiseptics than any known organized virus. On the other hand, this virus is killed by moist heat at 55° C. Rats, guinea-pigs, monkeys and birds are refractory, dogs and men in a slight degree susceptible, to this virus. All tentatives of vaccination and sero-therapy have failed; this is another mark of distinction from the known microbic affections.

The above considerations are not convincing that the myxomatous affection of which Sanarelli speaks is due to a soluble poison and not to a micro-organism. It is certain that the annals of medical nosology do not contain a single infectious malady whose cause is a recognized chemical poison capable of indefinite multiplication in nutrient media, even when diluted *ad infinitum*.

On the other hand, granted that the virus of canine rabies, of snake-bite, of syphilis, of Sanarelli's myxomatous disease, is a microbe, the morphological units of these diseases may be so small as to be below the limit of visibility. This is strongly intimated by Löffler in an address before the Madrid Congress above mentioned. Alluding to the fact that there exist numerous infectious diseases whose pathogenic agent is still unknown, he thinks that this may be due on the one hand to the peculiar conditions in which the causal microbes exist, their non-susceptibility to staining fluids, etc., and on the other to the exceeding smallness of the microbe. From this point of view he has made a special study of aphthous fever, a sufficiently common bovine disease whose virus accumulates in certain vesicles in the mouth and other parts. No germs are observable in the serum from these vesicles, and yet a very minute portion—a fraction of a drop—inoculated under the mucous membrane of a calf reproduces the disease. Filtration through porcelain does not destroy the infectiousness of the serum, though the virulence is attenuated by successive filtrations. Löffler claims that prophylaxis and immunity can be conferred on bovine animals by the use of such attenuated virus; it cannot, however, yet be cultivated in media out of the body. In short, the properties of the virus are, in general, those of known microbic contagion. Löffler ridicules the notion that a virus which can be propagated in infinitesimal quantity, like this, with unchanged powers for six or more successive generations, causing in every instance a general disease with its specific manifestations, can be anything but a *contagium vivum*.

The chemical doctrine so ably maintained by Liebig half a century ago has given place to that of microbes and their toxins, supported constantly by new discoveries; but perhaps to all time infectious diseases will exist whose pathogenesis will baffle chemist and bacteriologist alike.

MEDICAL NOTES.

ASSOCIATION OF AMERICAN MEDICAL COLLEGES.
—The Annual Meeting of this Association will be held at the Brown Palace Hotel, Denver, Col., Monday,

¹ Sir James Fayrer: Lectures in Lancet, 1884, First Part, pp. 195, 207, 239, 288.

² Smithsonian Contributions to Knowledge, 647, 1886.

³ Ninth Medical Congress of Hygiene and Demography, held in Madrid, April 10-16, 1898.

June 6, 1898, beginning at ten o'clock in the morning. The Judicial Council will meet at the same place at 9.30 A. M. Each college, member of the Association, is entitled to one representative and to one vote in all proceedings. The dean of the college is the official representative. When any other person acts in that capacity, he or she should bear an official appointment from the proper officers of the college. There are 65 of the 116 regular medical colleges conforming to the rules and holding membership in the Association. Probably six other colleges are eligible to membership but neglect from one cause or another to keep up membership. The imperial authorities of Japan recognize the diplomas of colleges holding membership without other formality and several State examining boards grant similar courtesies. The officers of the Association are: President, J. W. Holland, Philadelphia; Senior Vice-President, H. O. Walker, Detroit; Junior Vice-President, Thomas Opie, Baltimore; Secretary, Bayard Holmes, 104 East Fortieth Street, Chicago; Chairman of Judicial Council, Dudley S. Reynolds, Louisville, Ky.

BOSTON AND NEW ENGLAND.

ACUTE INFECTIOUS DISEASES IN BOSTON.—During the week ending at noon, May 25, 1898, there were reported to the Board of Health, of Boston, the following numbers of cases of acute infectious disease: diphtheria 15, scarlet fever 13, measles 66, typhoid fever 6.

THE DENVER MEETING: A NEW ENGLAND ITINERARY.—The Transportation Committee for New England announces the following Itinerary for the annual meeting in Denver of the American Medical Association: To leave Boston at 3 P. M. June 2d via Fitchburg Railroad, arriving at Niagara Falls the next morning via the West Shore Railroad, where a short stop will be made to view the Falls; thence over the Wabash Railroad to St. Louis via Detroit, where the party will be entertained by Parke, Davis & Co. From St. Louis the Missouri Pacific will be used, leaving there at 9.15 P. M., June 4th, arriving at Kansas City the following morning, where another stop of a few hours will be made to view the sights of Kansas City, leaving there about 10 A. M. and going over the Missouri Pacific and Denver & Rio Grande Railroads to Denver, arriving there about noon June 6th. Members of the party will have the privilege of returning via Omaha, Neb., thus enabling them to see the Trans-Mississippi International Exposition. The fare will be one fare and a third for a round trip. Physicians and their families are welcome. An Itinerary will be issued in a few days giving full details of the trip. These can be procured at the office of the Missouri Pacific Railroad, No. 190 Washington Street, or the Wabash Railroad, No. 5 State Street, Boston; or from the Committee, Dr. H. O. Marcy, Boston, Dr. T. D. Crothers, Hartford, Conn., and Dr. E. R. Campbell, Bellows Falls, Vt.

NEW YORK.

THE UNIVERSITY OF THE CITY OF NEW YORK.—The fifty-seventh annual commencement of the Medical Department of the University of the City of New York was held at the Metropolitan Opera House on May 18th. There were one hundred and three graduates, and the address to the class was made by Chauncey M. Depew. On this occasion the following important announcement, in the form of a statement from the Council of the University, was read:

"We here record as a subject of equal surprise and regret to this Council that a sister university (Cornell) some weeks ago began negotiations, looking to the establishment of a new medical school in this city, with what was plainly a combination of professors at variance with their own university, and this without any consultation with this university and without the slight delay which would have enabled these professors decently to tender their resignations of their respective professorships. The Council further announces that the trustees of the Bellevue Hospital Medical College have to-day voted to complete the consolidation of that college with the New York University. The strength of these two venerable foundations will henceforth be given to a single medical school, under the title of 'The University and the Bellevue Hospital Medical College.' The alumni of the two schools, numbering nearly ten thousand graduates, will be placed on the roll of the university. The two properties, together occupying 225 feet on East Twenty-sixth Street, near First Avenue, and costing about half a million dollars, will both be owned by the New York University and used by the united school.

"The faculty of the new school will consist of Dr. Edward G. Janeway, Dean, and seven professors of the former University Medical Faculty and twenty-one professors and adjunct professors of the former Bellevue Medical Faculty, together with such additional professors as may hereafter be appointed. Besides these there are thirty or more lecturers, instructors and assistants."

The usual prizes were awarded in the graduating class; there were thirty-three names on the honor list.

ST. VINCENT'S HOSPITAL.—The corner-stone of the new building for St. Vincent's Hospital was laid by Archbishop Corrigan on May 15th, addresses being made by Justice Morgan, J. O. O'Brien and members of the medical staff. The structure will be built upon the oldest part of the present site of the hospital on West 11th Street. On it there now stands an old stone building which has been occupied for over fifty years by St. Vincent's Hospital, and was originally built for the Roman Catholic Orphan Asylum. The new building will be an imposing structure of six stories in the French Renaissance style, composed of brick with limestone trimmings. It will have a frontage 145 feet in length, and in the rear of the easterly wing there is to be a large chapel. The cost is estimated at \$300,000, and it is expected to be ready for occupancy by January, 1899.

Obituary.

JOSEPH STEDMAN, M.D.

THE professional neighbors and friends of Dr. Joseph Stedman have heard with deep sorrow of his death, having hoped, although aware of his enfeebled health, that his life in this community where he has been so many years beloved and respected might be prolonged in comparative comfort and usefulness for many years.

Known to some of us since his return from army life at the beginning of his medical career, and to most of us through many years of professional and social acquaintance, we feel that the community has lost in him a good man, a patriotic and public-spirited citizen, and an able practitioner of his art; and that we, his professional associates, shall especially miss him as a wise counsellor, a genial companion and a faithful friend.

We tender to his bereaved family our most heartfelt sympathy—

GEORGE FAULKNER,
ROBERT T. EDES,
E. PEABODY GERRY,
HENRY W. BROUGHTON,
JOSEPH A. WINKLER,

ARTHUR P. PERRY,
GEORGE H. INGALLS,
J. S. H. SEARS,
HAROLD C. ERNST,
JAMES P. BROIDRICK.

DR. JOSEPH STEDMAN, of Jamaica Plain, died of myocarditis at Watkins Glen on the 16th inst. after an illness of about two years.

He was born in Medfield, Mass., October 13, 1835. Was educated in the schools of that town, at Groton Academy, and at the Military Academy at Norwich, Vt., from which institution he graduated in 1859.

While a student of medicine at Dartmouth College the Civil War broke out, and he enlisted in the famous Sixth Massachusetts Regiment, and was on duty at the Relay House near Baltimore for three months, the term of enlistment of that regiment. His military training at the Norwich University gave him immediate promotion from the ranks, through the various grades, to lieutenant-colonel before leaving the army. He returned to Medfield, raised a company (Co. B, 42d Mass. Reg.) of which he was made captain, and with which he saw service at New Orleans. At the expiration of his term of service he entered the medical department of the New York University and took his degree in 1864. Soon after that event came a call for four regiments from this State. In ten days Dr. Stedman had formed a three-years' regiment, which he took South, and with which he remained until the expiration of his term of service.

On returning from the army he settled in Jamaica Plain, and soon took a leading position as a physician and as a citizen. His interest in civil and professional matters is shown by the fact that he was a member of the Loyal Legion, Royal Arcanum, Knights of Honor, Home Circle, past President of Eliot and Jamaica Plain Clubs, a trustee of the Norwich University, one of the corporation of the Adams Nervine Asylum, a past master of the Eliot Lodge of Masons (holding the 32d degree), one of the founders and a trustee of the Jamaica Plain Dispensary, past president of the Sixth and Forty-second Regiment Associations, and for eleven years after the war was medical director of the First Brigade, M. V. M.

Dr. Stedman was also past vice-president and anniversary chairman of the Massachusetts Medical Society, past president of the Norfolk District Medical Society, and a member of the leading local medical associations.

Dr. Stedman's friends know of the deep and abiding interest he took in everything pertaining to his profession. Careful and persistent study, a constant attendance at medical meetings, a free intercourse with the leading minds in the profession, kept him abreast of the progress made in the care of the sick. Possessed of sound judgment and a good memory he was fertile in resources, an intelligent and judicious believer in remedies, holding fast to that

which is good. He thus laid a safe foundation for his daily practice, became a good diagnostician, faithful and closely attentive to his patients to a marked degree. He was a trusted, respected, beloved family physician.

His family and his friends will reverence his memory, and the time will be far distant when his many excellent qualities of mind and heart will be forgotten by the people in Jamaica Plain and vicinity.

G. W. G.

Correspondence.

[Special Correspondence.]

VENEREAL DISEASES IN PARIS.

PARIS, April, 1898.

MR. EDITOR:—Paris presents probably the best field in the world for the study of dermatological and venereal disease. To the St. Louis Hospital alone come from 300 to 400 patients daily; and this, although the largest, is only one of several clinics in the city. One gets here a correctness and fineness of diagnosis obtainable nowhere else, because each master of a clinic vies with his neighbor in the minuteness of his work. Each knows that he is travelling in fast company, and cannot afford to loiter by the wayside. Fournier, Du Castel, Hallopeau, Jullien, Wickham, Sabraud, Brocq, Thibierge and Darier form a galaxy of which any city might well be proud, not even considering such men as Guyon, Janet and Delefosse, who devote themselves entirely to genito-urinary work.

The treatment of gonorrhea does not differ in principle very much from that which is used in Germany. It consists, in the first stages, of copious irrigations of the urethra. It differs somewhat, however, in the drug employed. M. Janet, who has written the latest monograph on the subject, extols the permanganate of potash, and, as a matter of fact, this is the drug most frequently used by Professor Guyon at the Necker Hospital. Janet acknowledges that sometimes the silver salts, such as argentomine, argonin, argol, etc., act where the permanganate seems to have lost its virtue, but says that in the great majority of cases the latter is the better remedy because of its greater facility of administration. It is always readily soluble, and does not easily alter in solution. This is not the case with the silver salts. Patients are educated to present themselves at the first indication of urethral trouble. Abortive treatment is then instituted, which consists in washing out the anterior urethra twice a day with a solution of the permanganate of potash, 50 centigrammes to 1,000 grammes. An irrigation of this strength must be made quickly in order to avoid too much pain, and too much congestion of the urethra. The hope of the abortive treatment is, not only to cure quickly, and to avoid the necessity of acute complications, but also to leave, after the discharge has ceased, a thoroughly healthy and unchanged urethra. After three or four days the irrigations are given every eighteen or twenty-four hours, and if there be no inflammation, the strength of the solution may be increased to .75 or even to one gramme to 1,000. By the ninth day, there should be practically no discharge, and irrigations may be spaced out and finally suspended.

M. Janet says that the education of his patients is such, that during the year 1897, he has had none but abortive treatments to make. His patients, have, little by little, spread the idea of the great danger resulting from a neglected gonorrhea, so that he is now consulted about the first suspected drop. If, unfortunately, the posterior urethra becomes affected, irrigations are still made, but the strength of the solution is reduced by one-half, and even then the affected portion of the canal should be first cocaineized. In chronic discharges, nitrate of silver instillations (1 to 50 or 1 to 100) are generally used. I have never seen the Ultzmann catheter used here, although I believe that for the ordinarily skilled practitioner it is fre-

quently a better instrument than the Guyon sound. In the first place it is of metal instead of rubber, and may be for this reason more easily and absolutely sterilized. This is a great point in urethral work. Again, it is inflexible, of proper curve, and of desired length to reach the posterior urethra and go no farther. The man of ordinary skill may thus be fairly assured of a clean instrument, and a remedy placed where it belongs.

Professor Jullien employs at the Prison St. Lazare pure ichthyol to destroy the gonococci in the urethrae of women. He winds a bit of cotton around a metal carrier, dips this into pure ichthyol, passes it into the urethra, and rubs it up and down against the wall of the canal with some violence. No pain seems to be caused by the application, and the microbes are certainly destroyed. He then places in the vagina a tampon well soaked in a solution of peroxide of hydrogen.

After an exhaustive investigation, Professor Fournier has concluded that the ratio of extra-genital chancres to those of the genitals proper is about one in every ten cases. He has published a record of 10,000 cases in which the ratio was about six or seven to a hundred. He thinks, however, that the proportion is actually greater, since chancres of special parts, such as the eye or ear, would probably go to specialists of those regions, and thus escape his observations, while genital lesions would necessarily gravitate to him. He believes, also, that most of the chancres of the face of men are due to the razor. In this connection, at the New International Congress of Hygiene and Demography held at Madrid last week, Dr. Ovilo, after studying the methods of propagation of contagious diseases, and particularly the long persistence of germs in certain objects, has among other propositions submitted the following:

"The instruments of *coiffeurs* are often the cause of ordinary skin diseases and of other more serious ones, such as lupus and syphilis. Each individual should use his own implements, and the authorities should endeavor to introduce a rational method of disinfection at the shops of the *coiffeurs*. The proprietors of the shops should in no case allow their employees to serve any customers bearing evident signs of disease."

A nice nut this for those who would refuse hospital treatment to syphilitics because their condition is *prima facie* evidence of immorality. Is it immoral, then, to be shaved, or to have one's hair cut?

Some six weeks ago, a young man walked into the clinic of the St. Louis, and exhibited a single, typical, indurated chancre on the free border of the prepuce. There was, as yet, no glandular involvement, and no roseola. Professor Fournier ordered circumcision, while explaining that he had never as yet seen any good result from abortive treatment by destruction of the primary lesion. However, his colleagues did it, and he felt that it was hardly just to the patient to allow any chance of avoiding syphilis to escape. Unfortunately, the patient disappeared after a week or two, and I have never been able to hear of any result of the treatment.

Under the theory that the first life of the chancre is devoted to local cell changes, and that general infection comes afterward, it is our duty to destroy either by excision or thorough cauterization every such lesion that comes under our observation at a sufficiently early time in its existence. The old-fashioned practice of cauterizing every suspicious ulcer of the penis may have been based on stronger clinical grounds than we now believe. Fournier has never been an advocate of this treatment, and in his later writings is less inclined than ever to uphold it. One of his strong objections, however, is that it transforms a benign, painless, self-healing lesion into a painful, inflamed one, with perhaps a disfiguring resultant scar. While I should be loath to cause a subsequent disfigurement, I think that the excision of the chancre might well be urged on prophylactic grounds, not as concerning the escape of the patient himself from syphilis, but on account of those with whom he might come in contact. The irresponsible owner of an indurated chancre would be absolutely unable to

have sexual intercourse, and the production of a painful lesion might have such an effect on his mind that he would better appreciate the gravity of his condition, and give much closer attention to his subsequent treatment. A distinct good to the community would thus result from a procedure which might be absolutely useless to the individual patient.

(To be continued.)

RECORD OF MORTALITY

FOR THE WEEK ENDING SATURDAY, MAY 14, 1898.

CITIES	Estimated population.	Reported deaths in each.	Deaths under five years.	Percentage of deaths from				
				Infectious diseases.	Acute lung diseases.	Diarrheal diseases.	Diphtheria and croup.	Scarlet fever.
New York . .	3,438,899	1282	470	9.76	20.06	1.60	3.60	2.08
Chicago . .	1,619,226	—	—	—	—	—	—	—
Philadelphia . .	1,314,256	490	184	5.98	12.88	1.15	4.14	1.38
St. Louis . .	570,000	189	—	2.65	26.50	.53	2.12	—
Baltimore . .	550,000	196	66	6.63	13.77	.51	.51	.51
Boston . .	517,732	200	53	5.00	16.50	2.50	—	—
Cincinnati . .	405,000	107	—	4.63	9.30	—	—	—
Cleveland . .	350,000	—	—	—	—	—	—	—
Pittsburg . .	285,000	89	32	20.16	11.20	7.65	2.55	—
Washington . .	277,000	120	35	12.75	13.60	1.70	1.70	.85
Milwaukee . .	275,000	—	—	—	—	—	—	—
Providence . .	150,000	50	9	8.00	18.00	4.00	4.00	—
Worcester . .	105,050	45	18	15.54	17.76	—	4.44	2.22
Fall River . .	96,919	34	7	—	11.76	—	—	—
Nashville . .	87,754	32	6	9.39	8.13	6.26	—	—
Lowell . .	87,193	25	14	12.00	10.00	—	4.00	8.00
Cambridge . .	86,812	23	4	4.35	21.75	4.35	—	—
Lynn . .	65,220	13	2	7.69	7.69	—	—	—
Charleston . .	65,165	—	—	—	—	—	—	—
New Bedford . .	62,416	21	6	4.76	4.76	—	—	—
Somerville . .	57,977	16	1	6.25	6.25	—	—	—
Lawrence . .	55,510	15	8	6.66	6.66	—	6.66	—
Springfield . .	54,790	19	4	10.52	5.26	—	5.26	—
Holyoke . .	42,364	14	7	35.70	—	7.14	—	—
Salem . .	36,082	13	4	—	13.58	—	—	—
Brookton . .	35,853	10	3	—	—	—	—	—
Malden . .	32,894	6	1	16.66	16.66	16.66	—	—
Chelsea . .	32,716	11	8	9.09	9.09	—	—	—
Haverhill . .	31,406	11	4	27.27	27.27	9.09	—	—
Gloucester . .	29,775	—	—	—	—	—	—	—
Newton . .	26,990	—	—	—	—	—	—	—
Fitchburg . .	26,392	7	5	28.56	42.84	—	14.28	—
Taunton . .	27,812	11	2	—	—	—	—	—
Quincy . .	22,562	9	1	—	33.33	—	—	—
Pittsfield . .	21,891	—	—	—	—	—	—	—
Waltham . .	21,812	7	1	14.28	—	14.28	—	—
Everett . .	21,575	6	2	33.33	16.66	—	—	—
North Adams . .	19,135	—	—	—	—	—	—	—
Northampton . .	17,418	—	—	—	—	—	—	—
Chicopee . .	17,368	6	3	—	16.66	—	—	—
Brookline . .	16,164	3	1	—	—	—	—	—
Medford . .	15,832	3	1	—	33.33	—	—	—

Deaths reported 3,068; under five years of age 912; principal infectious diseases (small-pox, measles, diphtheria and croup, cerebro-spinal meningitis, diarrheal diseases, whooping-cough, erysipelas and fevers) 274, acute lung diseases 513, consumption 196, diphtheria and croup 87, diarrheal diseases 47, scarlet fever 37, measles 29, cerebro-spinal meningitis 29, typhoid fever 19, whooping-cough 18, erysipelas 8.

From measles New York 17, Philadelphia 5, Baltimore and Washington 2 each, Boston, Cincinnati and Haverhill 1 each. From cerebro-spinal meningitis Washington 8, Baltimore 6, Worcester and Holyoke 3 each, Everett 2. From typhoid fever Pittsburg 5, New York and Cincinnati 4 each, Baltimore 2, Boston, Nashville, Somerville and Holyoke 1 each. From whooping-cough New York 12, Philadelphia 2, Boston, Cincinnati, Pittsburg and Springfield 1 each. From erysipelas New York 4, Boston, Worcester, Chelsea and Waltham 1 each.

In the thirty-three greater towns of England and Wales, with an estimated population of 11,218,378, for the week ending May 7th, the death-rate was 17.4. Deaths reported 3,750; acute diseases of the respiratory organs (London) 226, measles 157, whooping-cough 114, diphtheria 50, diarrhoea 34, scarlet fever 29, fever 23, small-pox (Gateshead) 1.

The death-rates ranged from 10.9 in Croydon to 26.2 in Liverpool; Birmingham 18.8, Bradford 16.5, Cardiff 12.9, Gateshead 20.1, Hull 14.1, Leeds 18.3, Leicester 16.0, London 16.9, Manchester 20.4, Newcastle-on-Tyne 20.8, Nottingham 16.3, Portsmouth 12.6, Sheffield 17.8, West Ham 12.4.

OFFICIAL LIST OF CHANGES IN THE STATIONS AND DUTIES OF OFFICERS SERVING IN THE MEDICAL DEPARTMENT, U. S. ARMY, FROM MAY 14, 1898, TO MAY 20, 1898.

The following named officers are detailed to represent the Medical Department of the Army at the annual meeting of the American Medical Association to be held in the City of Denver, Col., June 7 to 10, 1898: LIEUT.-COL. ALFRED A. WOODHULL, deputy surgeon-general; MAJOR CURTIS E. MUNN, surgeon.

Acting Assistant Surgeon JOSE M. DELGADO, U. S. A., will proceed from this city to Tampa, Fla., and report for duty with the U. S. troops at that place.

Acting Assistant Surgeon DOUGLAS F. DUVAL, U. S. A., will proceed from this city to West Point, N. Y., and report for duty at the U. S. Military Academy.

Acting Assistant Surgeon S. MELVILLE WATERHOUSE, U. S. A., will proceed from this city to Fort Hamilton, N. Y., and report for duty at that station.

MAJOR WILLIAM B. DAVIS, surgeon, is assigned to duty in charge of the general hospital at Fort Myer, Va., in addition to his duties as surgeon at that post.

Acting Assistant Surgeon DAVID BAKER, U. S. A., will proceed from Waltonville, Ill., to Fort Thomas, Ky., and report for duty in the general hospital at that place.

Acting Assistant Surgeon GEORGE H. RICHARDSON, U. S. A., will proceed from this city to San Francisco, Cal., and report in person to the commanding general of the expedition to the Philippine Islands, for duty.

Acting Assistant Surgeon ARTHUR JORDAN, U. S. A., will proceed from Richmond, Va., to Mobile, Ala., and report for duty with troops in the field at that place.

MAJOR WILLIAM H. CORBUSIER, surgeon, is relieved from duty at Angel Island, Cal., and assigned to duty as acting medical purveyor of the expedition to the Philippine Islands.

CAPTAIN CHARLES B. EWING, assistant surgeon, will proceed at once to New Orleans, La., and report to the commanding officer, 5th Cavalry, for duty.

Acting Assistant Surgeon FREDERICK J. COMBE, U. S. A., will proceed from Brownsville, Tex., to Tampa, Fla., and report for duty with troops in the field at that place.

Acting Assistant Surgeon CLARENCE J. MANLY, U. S. A., will proceed from this city to Fort Thomas, Ky., and report for duty in the general hospital at that place.

Acting Assistant Surgeon IRA A. SHIMER, U. S. A., will proceed from this city to Fort Myer, Va., and report for duty in the general hospital at that place.

A contract having been made with DR. A. D. MCARTHUR, of Littleton, Col., for duty as acting assistant surgeon at Fort Logan, Col., he will proceed to that post and report to the commanding officer for duty, to relieve Acting Assistant Surgeon CARROLL E. EDSON, whose contract is about to terminate.

CAPTAIN GEORGE E. BUSHNELL, assistant surgeon, is relieved from duty as attending surgeon and examiner of recruits at Boston, Mass., and will report in person to the Surgeon-General of the Army, for duty in his office.

The following named medical officers, in addition to their present duties, are assigned to duty in charge of the general hospitals at the places opposite their respective names: LIEUT.-COL. WILLIAM H. GARDNER, deputy surgeon-general, Fort Thomas, Ky.; MAJOR BLAIR D. TAYLOR, surgeon, Fort McPherson, Ga.

Acting Assistant Surgeon GEORGE H. PENROSE, U. S. A., will proceed from Salt Lake City, Utah, to Fort Douglas, Utah, and report to the commanding officer for duty at that post.

Acting Assistant Surgeon AMOS W. BARBER, U. S. A., will proceed from Cheyenne, Wyo., to Fort D. A. Russell, Wyo., and report to the commanding officer for duty at that post.

Acting Assistant Surgeon H. P. JACKSON, U. S. A., will proceed from Charleston, S. C., to Key West, Fla., and report in person to MAJOR WILLIAM E. HALL, surgeon, in charge of general hospital at that place, for duty.

Acting Assistant Surgeon CHARLES K. CUTTER, U. S. A., now on duty at Boston, Mass., is assigned to duty as assistant to the attending surgeon and examiner of recruits in that city.

Acting Assistant Surgeon MAYNARD G. BURGESS, U. S. A., will proceed from this city to Mobile, Ala., and report in person to the commanding general of the troops at that place for duty.

MAJOR ROBERT H. WHITE, surgeon, is relieved from duty at the Presidio of San Francisco, Cal., and will report in person to the commanding general of the expedition to the Philippine Islands for duty as chief surgeon.

MAJOR EDWARD B. MOSELEY, surgeon, is relieved from duty at Benicia Barracks, Cal., and ordered to Presidio of California, relieving MAJOR ROBERT H. WHITE, surgeon.

RATES FOR THE DENVER MEETING.

The Committee on Transportation announce that the New England Road and Trunk Lines have decided on a fare and one-third, certificate plan. Tickets on sale three days before meeting, and to be used for return trip not later than three days subsequent to the meeting, Sundays excepted. They grant no stop-over on diverse routes returning. The Central and Western Associations grant a one-fare rate for round trip, plus four dollars and two dollars respectively, for diverse routes returning.

Cost of individual trips in Trunk Lines territory, New York to Denver and return, transportation, \$64.75, Pullman \$22.00, meals (estimated) \$15.00, making total round trip \$101.75, intermediate points in proportion.

The Pennsylvania Railroad will furnish special train, consisting of combined baggage and smoking car, dining car, sleeping and observation car, to run through from Jersey City to Denver and return, providing transportation, Pullman berth, meals in dining car, both going and returning, the trip to be made without stop-over en route, for the following:

Round trip from New York, \$96.00, with proportionate rates for other stations; provided at least 50 passengers or more constitute the party from the Trunk Lines or New England territory. The route of the special train, going and returning, is to be via Pittsburgh, St. Louis and the Missouri Pacific Railroad, to Denver. The special train returning, however, will, if desired, run over the Union Pacific Railroad, from Denver to Omaha, arriving at 7 A. M. and leaving at 9 P. M., thereby giving fourteen hours at Omaha. For this privilege an additional charge of \$4.00 will be made. The special must leave New York, June 4th, at 2 P. M., arriving at Denver, June 7th, 6 A. M.

Those desiring to travel by the Pennsylvania Special should communicate at once with their local Pennsylvania agent, or with George W. Boyd, General Passenger Agent, Philadelphia, who will arrange for tickets and Pullman space. The special will not be run unless fifty passengers are secured out of the territories above stated.

H. L. E. JOHNSON, M.D.,
Chairman, Committee Transportation.

THE AMERICAN MEDICAL ASSOCIATION.

DENVER MEETING, JUNE 7-10, 1898.

Ladies' headquarters will be at Unity Church, where they will be received by the wives of physicians of Denver. Arrangements have been effected for their entertainment during their visit, and committees will escort the visiting ladies to the various points of interest in Denver.

On Friday, June 10th, a complimentary excursion to Idaho Springs and around the loop will be given by the Colorado State Medical Society. At Idaho Springs, the Association will be entertained by the citizens.

On Saturday, a complimentary trip will be made to Colorado Springs, where the Association will be entertained by the local physicians and citizens. Visits will be made to all points of interest in the vicinity. Arrangements will be made for trips to Pike's Peak and the celebrated mining camp of Cripple Creek at low rates of fare.

At a date to be determined, special trains for Glenwood Springs will leave Colorado Springs via the Denver and Rio Grande Railroad and the Colorado Midland Railroad. Tickets \$5.00, good going via one railroad and returning the other, and for ten days from date of issue. The trip to Glenwood is one of the most attractive in Colorado, giving excursionists a view of some of the finest scenery in the Rocky Mountains.

Special hotel rates will be given by the Hotel Colorado and other hotels of Glenwood Springs. The springs, baths and swimming pool will be free to the Association.

Special cars will be hauled on the Colorado Springs train and the Glenwood Springs Special, only when handed to the railroads with their full capacity.

SECTION DINNERS. — The following Section Dinners will be given on Tuesday, June 7th, at 7.30 P. M.: Practice of Medicine, Metropole Hotel; Surgery and Anatomy, Obstetrics and Diseases of Women, Ophthalmology, Brown Palace Hotel; Laryngology, L'Imperiale Hotel; Materia Medica, Pharmacy and Therapeutics, Cutaneous Medicine and Surgery, Windsor Hotel; Diseases of Children, The Albany Hotel; Neurology and Medical Jurisprudence, University Club; Stomatology, St. James Hotel. That satisfactory arrangements may be made for dinners, it is essential that all members who expect to be present notify E. C. Rivers (16th and Stout Streets, Denver), the Chairman of the Committee on Section Dinners, as soon as possible and not later than June 4th.

C. E. EDSON, M.D., Assistant Secretary.

BOOKS AND PAMPHLETS RECEIVED.

The X-Ray from a Medico-Legal Standpoint. By R. Harvey Reed, M.D., Columbus, O. Reprint. 1898.

A Clinical Study of Kryptofine. By Sidney V. Haas, M.D., and J. Bennett Morrison, M.D., New York. Reprint. 1898.

Original Articles.

HOW RUSSIA CARES FOR HER FOUNDLINGS.¹

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ONE of the most perplexing problems of the present day — perplexing not only to the professional philanthropist but to the private giver — is the problem of alleviating distress without at the same time encouraging vice. I have been interested of late in noticing how this problem — which perhaps some of us had thought a modern one — has attracted attention and provoked discussion in countries and ages far removed from our own. I was led to this line of thought by some studies in connection with the Moscow Foundling Home, which I visited when in Russia last summer, while attending the sessions of the International Medical Congress.

The Imperial Foundling Home of Moscow is the largest institution of its kind in Europe, giving refuge annually to 17,000 infants abandoned by their mothers. The buildings cover an area of 81,000 square metres, and accommodate 7,000 persons. The approach to the entrance of the Home from the public street is between rows of fine trees, which must usually present a beautiful appearance, although at the time of our visit they were suffering from nearly two months of drought. The enclosure is surrounded by a high wall, constructed, as is also the oldest of the buildings, from the materials of the ancient walls of Moscow, demolished in the reign of the Empress Elizabeth. A large arch forms the entrance.

The Administration Building — the oldest building on the grounds — is, with a few of the adjacent wards, all that is shown to visitors except by special permission. On entering, we were received by a porter in uniform of vivid blues and reds — slightly resembling, in his dress and bearing, the austere guardian of the Bank of England — and shown by him into the visitors' room. There we were met by one of the visiting physicians who greeted us most courteously, although he was evidently perplexed as to our nationality, seeming to suppose that all English-speaking persons must come from England. I may say, in passing, that the Russian physicians whom we met at this and other hospitals impressed me, by both their faces and bearing, as men of a high order of ability.

By the visiting physician we were introduced to a resident female superintendent, who spoke English fluently, much to our comfort. She piloted us at once up several flights of iron stairs to one of the wards for infants. The ward was scrupulously neat and clean, and well lighted by rows of long windows, on opposite sides, reaching almost from floor to ceiling. The floors were of hard wood, and partially covered by long strips of matting. Down the centre of the ward ran a double row of cribs, placed end to end. There must have been nearly 200 infants in this ward, most of them less than two weeks old. On both sides were the nurses, numbering one-third or one-half as many, dressed after the fashion of the Russian peasant, having a white chemisette with a red cotton overdress, with white stockings and felt slippers, and nearly all wearing cotton kerchiefs tied about the head. They all looked clean and wholesome, and

well-fed. Some were holding babies in their arms and nursing them, and had loose cotton squares thrown over their shoulders and over the babies' heads. The ladies in our party commented upon their kindly treatment of the children, and remarked that they held them as if they loved them. This would not be at all surprising, since it is an open secret that many a nurse is really the mother of the child she cares for; the conditions of admission to the home being so easy that it is not an uncommon thing for a married woman in needy circumstances to leave her child at its door at night, apply there for a position as wet-nurse the next morning, and perhaps before another day closes find and secure her own little one again, to receive board, lodging and wages in return for her care of it while it remains in the home. But of this I shall speak again later.

As we entered the ward, each nurse rose with her baby, and remained standing until we left. In one corner of the room were piled mattresses, which at night are placed on the floor in front of the babies' cribs for the nurses to sleep upon. These mattresses are filled with straw, which is renewed every three months. The bed linen of the nurses is changed once a week; that of the infants once a day.

We were shown these babies somewhat in detail, and when nearly through were presented to the "show baby" — one which did not impress us as very wonderful, except that it was rather prettier than the rest, and black-eyed, while the eyes of nearly all the others were blue. These babies were all dressed in swaddling clothes, with their arms bound to their sides. This method is discarded when the baby is taken away from the wet-nurse. The healthy infants receive a change of these clothes about eight times in the twenty-four hours: the sick ones as often as is necessary, up to fifteen times. The two sexes are distinguished by the boys having blue and the girls pink cards, bearing their names and numbers, fastened about the neck; also the same color upon some part of their clothing. It seemed odd to find, in far-off Russia, the very same assignment of colors as among the petted babies of our own land.

The scene was certainly unique, but not inspiring. The nurses were of the stolid peasant type, and their faces, though kindly, were heavy, and showed little expression either of hope or fear.

Adjoining this we were shown a smaller ward occupied by orphans of "noble parentage," whose fathers had lost their lives in the service of the State. Just what "noble" meant in that connection we could not then learn. They were attractive-looking, most of them from four to six years old, having playthings, and presenting very much the appearance of children in an ordinary nursery.

The second general ward visited was used for sick infants and children, and was capable of accommodating nearly as many as the first ward, but there were not many in it at the time of our visit, because all the sick ones that were not too sick to bear the journey had been sent into the country.

From here we passed through long corridors to one of the rooms devoted to the children's baths. Through the centre of one portion of this room was a huge metallic tank, supplied with both hot and cold water, where the babies were washed. One nurse washed them, another dried, and a third put on the swaddling clothes. This was done as automatically and regularly

¹ Read before the Cambridge Medical Improvement Society, April 25, 1898.

as though the nurse was a machine and the baby a piece of wood or metal to be put through some process, every one in precisely the same way, the entire process occupying only about three minutes. It was noticeable how little they cried, and how little attention the washers and dressers paid to their squirming, kicking and occasional screaming. All this was very interesting, mainly because it was so different from the way a single baby with us is cared for, when taking its bath. One of our party remarked that he supposed, by the time we got back to Boston, we should find that the inventive genius of that town had produced a washing machine for washing and dressing babies, just as table crockery is washed by machinery in large hotels.

From the bathing-room we passed through other long corridors, and down flights of stairs to the lower part of the building where the kitchens are located. These were similar to the kitchens of any large, well-regulated hotel, neat and orderly, all the work being done by men wearing white aprons, and paper caps on their heads. We were invited to taste of the cookery, and those who ventured the experiment found the "black bread"—the staple of peasant diet—more palatable than it promised.

The last place visited was the store-room where clothing for babies, nurses and attendants was kept. It seemed like the quartermaster's department of an army, only, instead of great coats in huge piles, with trousers and shoes to match, there were the swaddling clothes, small felt or knit shoes, tiny stockings, and the diminutive pinning-blankets and head-fixings.

The report of the Home for 1893—the latest I was able to procure—places the number of nurses' outfits owned by the institution at 5,000. The assortment of infants' clothing includes 1,700 bands and 40,000 coverlids. The entire stock represents a capital of 200,000 roubles, about \$104,000 (Report, p. 21). Of metal cradles, each draped by a muslin curtain and provided with a mattress covered with oil-cloth, the hospital owns 15,000. For those prematurely born, there are 45 heatable cradles, each containing a double metallic receptacle, the intervening space being filled with hot water. The hospital is also provided with a Farinier-Overt incubator, ordered from Paris.

Before leaving, we were very politely asked to register our names and residences, and they did not forget to show us where we could deposit our rouble, more or less, as the spirit moved us, to help these poor but fortunate unfortunates.

Naturally, the cursory character of our inspection left much of our curiosity regarding this great institution ungratified. But the report before referred to supplemented our personal observations very acceptably, in spite of its curious English and frequent typographical errors. Although we had noticed no lack of ventilation in such parts of the building as we visited, the report refers to defects of that nature.

"Large as the nurseries for the sucklings undoubtedly are," it says, "they were originally meant to hold only 500 infants, and as a matter of fact there is generally double that number in them. In all the nurseries occupied by the infants there are 873,964 cubic feet of air: each infant and nurse receiving but 977 cubic feet, that is to say, a third less than 1,500 feet, which a rational hygiene demands, and the air from the corridors offers but a feeble compensation

for this." Partly to this defective ventilation, and partly to colds caught on their way to the Home, is attributed the pneumonia which causes the death annually of nearly seven per cent. of the nurslings.

The entire annual mortality, I may say here, ranges from 20 to 43 per cent.: "gastro-enteritis" being accountable for five per cent. and pyemia for 13. The mortality in cases of pyemia has diminished considerably since antiseptic bandages have been used on the umbilical sore; but a large number of infants arrive at the Home with symptoms of purulent infection already clearly noticeable.

Of the total number brought to the hospital, 20 per cent. are sick at the time of admission; 30 per cent. of weak constitution, weighing below the average (3,000 grammes, or about 6.6 lbs.); five per cent. very weak (debilitas congenital); four per cent. of premature birth (600 of these every year); and eight per cent. syphilitic, syphilis being very common in Moscow. Of this number of ailing, delicate children, an annual average of 100 die at the hospital only a few hours after their admission.

It should be said that all these statistics of mortality give an unfair impression, if one does not bear in mind that Russia is one of the countries where the average rate of mortality is highest. The climate is unfavorable to health—particularly to the health of children—and the diet of the poorer classes is too meagre to counteract its rigors successfully. The present rate of mortality at the Moscow Foundling Home is a gain over that of former years, when it ranged from 50 to 60 per cent., and compares favorably with that at Vienna, which has been known to rise as high as 75 per cent. The most shocking death-rate in the records of foundling hospitals is that reported from Dublin, where, for a series of years preceding 1835, four out of every five perished. The Dublin Hospital was closed soon after this, its opponents urging that it had not succeeded in saving life. No doubt it had to contend with some of the very same conditions which in Russia are so unfavorable to the health of childhood. The Paris and London Hospitals, on the other hand, represent a less impoverished population, and can boast a much lower death-rate.

Certainly there is little fault to be found with their condition when once the babies arrive within the sheltering walls of the Moscow Home. Great care is exercised with regard to cleanliness. Floors, ceilings and walls are covered with oil paint, which facilitates antiseptic cleaning. In summer the children are taken to barracks provided for this purpose, so that they may get the benefit of the fresh air to the utmost. The occasion is improved to thoroughly clean and disinfect the wards. Slops and the contents of the water-closets are conveyed through metal pipes into tiled cisterns; the liquid, being separated from the solid, is filtered, purified, and in this shape flows into the river; the solid portion is put into carts and carried outside the city. The bathing facilities for the infants have been described already. The baths of the wet-nurses are also carefully regulated, there being a bathroom especially for their use, although in summer they are required to bathe in the river every morning.

The report finds the lighting and heating of the hospital less inadequate than its ventilation. "Light," it says, "is freely distributed. Each nursery has thr-

teen large windows, of which five have large squares, movable for airing purposes, and three have a metal network on Murray's system. The heating is done by means of Dutch stoves. During the winter, the temperature is maintained at an average of 68° F, and in the section for children prematurely born it is 72.5° F. Near each nursery there is a metallic drying oven, where the swaddling clothes of the children are dried and aired."

But what are the requirements for admission to all this warmth and comfort? The Home was originally intended for illegitimate children, deserted by their parents, and the larger proportion of those whom it shelters are still such. But since 1837, in accordance with the ukase of the Emperor Nicholas, a small part of the establishment has been reserved for the maintenance and education of legitimate orphans—doubtless the same who were shown to us as "children of noble parentage"—whose parents have served the State in a military or civil capacity. The Home is thus divided into two parts, one for these orphans, the other for foundlings. The Home also makes temporary provision, in cases where extreme poverty can be shown, for legitimate children whose parents are living: but the number so received—since we are not now speaking of those smuggled in under pretence of illegitimacy—is very small, averaging only about 200 out of the 17,000 received annually. Such children remain under the protection of the Home for only one year, whereas the real "foundlings," as will be seen later, enjoy the advantages of its supervision until they reach their majority.

The formalities at entrance are exceedingly simple, as I have before intimated. The Home stands open, day and night, to receive any child under one year old, who is brought with a certificate of baptism. If the parents wish to hide the secret of birth, they may present the document sealed, but in such cases a payment of 25 roubles (\$12) is demanded. Even the certificate of baptism may be dispensed with, if the babe is newly born, and the fact attested by the presence of the navel-string. Eighty per cent. of those received are brought in this condition. The number of children received daily averages 45, but often runs as high as 70 and over.

Upon admission, each child is registered and given a number engraved on an oval-shaped bone medal which is hung around its neck, and the person who brings the child is given a receipt bearing the same number and also the date of admission. The swaddling clothes and other linen are returned to the person bringing the child, and it is immediately put into a hospital outfit. It is then weighed, and its length, chest and head measured. All these details are inscribed on a card, which is kept with each child during its stay in the Home. As has been said, these cards are blue for the boys and pink for the girls, and on them is written also the name of the child, its number, age, date of birth, date of admission, and—if known—the name of the place it was brought from. Later will be added the name and number of the nurse, the date of vaccination, and the increase, from time to time, in weight.

After these preliminary formalities, the child is bathed, the umbilical sore treated with such antiseptics as it may require, and a compress applied. As a safeguard against purulent ophthalmia new-born babes have their eyes treated with a two-per-cent. solution

of nitrate of silver, according to the formula of Credé. In cases where the existence of syphilis is suspected, the child is not given to a wet-nurse, but is fed from the bottle.

Most of the foundlings, however, are intrusted to wet-nurses. These are usually girls from the suburbs of Moscow, or peasants from the adjacent governments. Many of them, undoubtedly, are the mothers of foundlings. The applicants for such positions are subjected to a careful medical examination, registered, and provided with the uniform of the service, their own clothes being stored for them until they leave the Home. Their first duty is to take a thorough bath, and they are not given an infant to care for until they have been in the institution over one night.

There are, on the average, 14,000 nurses yearly passing through the Moscow Home; but even this enormous number is inadequate—as will be seen on recalling the number of children received, 17,000—and it is often necessary to entrust two children to one nurse. Under such circumstances, the nurse receives extra rations and beer, and extra pay. During the summer months, when other work for women is plenty, as well as at the Christmas and Easter seasons, the scarcity of nurses is particularly felt. Artificial nourishment—boiled cow's milk in equal parts with barley water (Jacobs' mixture)—is then resorted to; but the mortality among the children always increases pitifully at such times, sometimes reaching 60 per cent.

(To be continued.)

THE PATHOLOGY, GENESIS AND DEVELOPMENT OF SOME OF THE MORE IMPORTANT SYMPTOMS IN TRAUMATIC HYSTERIA AND NEURASTHENIA.¹

BY MORTON PRINCE, M.D.,

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I. FATIGUE.

THE mode of development of individual symptoms of the traumatic neuroses has received very little attention at the hands of writers. While in organic diseases the relation of symptoms to their underlying causes has been for the most part worked out, very little attempt has been made to do this in so-called functional diseases of the nervous system. This will prove to be a fruitful field for future research. At present we are not in a position to refer many of the symptoms of the traumatic neuroses to a pathological basis.

Some symptoms are what we may call essential factors of a neurosis, and depend in some way upon physiologico-anatomical conditions of which we are at present ignorant, and upon the nature of which we can only speculate. Such, for example, are hysterical paralysis, anesthesia, changes in reflexes, etc. Given one of these essential symptoms, we can almost predict the presence of the others. On the other hand, in almost every traumatic case, there are other symptoms which are purely fortuitous, and depend upon the particular individual conditions of the accident, or upon the particular make-up of the individual's organization. These may, or may not be present in any

¹ Read before the Clinical Section of the Suffolk District Medical Society, May 18, 1898.

individual case. Many such symptoms may be enumerated — pain, headache, some forms of fatigue, gastric symptoms and a host of others. The individual circumstances upon which the presence of these depends, are blows, sprains, severe fright, etc., which, of course, vary greatly in their nature in individual accidents. It is this last class of symptoms which will be for the most part the subject of this paper.

Inasmuch as traumatic hysteria and neurasthenia do not differ in their nature from the same neuroses when due to other causes than traumatism, I have made use of non-traumatic cases when it seemed advantageous to do so, for the purpose of illustrating and studying the pathology of individual symptoms.

Fatigue. We know little of the nature or origin of the *feeling of fatigue* which occurs in true neurasthenia and hysteria, or, for that matter, when occurring normally after exertion. We merely know that it is a feeling that is generally induced, but not always, by expenditure of effort.

Undoubtedly a study of physiological fatigue would throw light upon the nature of pathological fatigue; and we can learn something from the experiments of Mosso, Lombard and others; but it can hardly be said that these observations more than indicate the lines on which we must seek an explanation.

Physiological researches have shown that the diminished contractile power of a fatigued muscle is due in part to the consumption of the energy-liberating compounds in the muscle cells, and in part to the accumulation in the muscle of chemical substances that poison the muscle. If these toxic substances be washed out, the muscle regains its power of contraction; but in fatigue, in consequence of this accumulation, the muscle responds with increasingly diminished force to a given stimulus, or requires a stronger stimulus to induce a given contraction. Mosso² has further shown that the circulating blood of a fatigued animal is defiled by the accumulation of poisonous substances, and that this blood is capable of inducing fatigue if injected into the veins of another animal.

But we must distinguish between the *sensation* of fatigue and that fatigue of the muscles which is a diminished capacity to respond to nervous impulses of a given strength. The term fatigue is used to mean two distinct sets of phenomena which may or may not coexist. As used by the physiologists, it is applied to the diminished capacity for muscular work following muscular contractions, and then it is a motor phenomenon. But clinically this term is applied not only to this incapacity for mechanical work, but also to the sensory state or feelings of fatigue, or tire, which may be present whether mechanical work has been done by the nervous system and muscles or not. The toxic waste products may be a factor in the causation of the sensation of fatigue which may result as well from mental work, and therefore be a consequence of nervous cell activity alone; but this does not necessarily exclude the toxic action of the products of cell metabolism, as these toxic waste products probably also accumulate in nervous tissue. But as yet there is no evidence that the sensation of fatigue and the diminished capacity for muscular contraction are due to the same factor, or at least always so. In fact, there is every reason to believe that at times the

former must be entirely independent of the toxic effect of any substance produced by muscular activity; for it is a clinical experience that sensory fatigue may be present when there has been no muscular activity, as in the morning after a night's sleep, and under other circumstances (after emotion).

Now, it is generally assumed by clinicians that in neurasthenia and hysteria fatigue represents the same exhaustion and mechanical incapacity for work that occurs under physiological conditions and which can be demonstrated in the laboratory. But all clinical observation shows that this is a false inference. Clinical fatigue is observed under conditions that make it difficult to suppose that there has been either a decrease in energy-holding compounds or an accumulation of toxic waste products, and we must assume that the state of fatigue must be due to some other condition. For this reason I have thought it well to consider, although superficially, some of the aspects of the problem here, recognizing that it is impossible to give an answer at present to some of the questions involved.

Fatigue may be a manifestation of or physiological sequence of emotion. It is well known that a violent emotion, like fear or anger, may result in a condition of exhaustion that subjectively simulates physiological fatigue, and there may be motor weakness as well as the feeling of exhaustion. This has been well described by Féré (*La Pathologie de Emotions*).

Sometimes even mild emotions are followed by a complete feeling of exhaustion which comes on suddenly, out of a clear sky as it were, in the midst of a feeling of well-being, in persons otherwise well and strong, and which renders them for the moment incapable of work. As an example, I may cite the case of a strong and healthy man, excepting that he sometimes suffers from a pure habit emotion which comes upon him when he is placed in certain, to him, embarrassing situations. At such times, with the evolution of the emotion, there comes over him, as he describes it, a feeling of intense fatigue and exhaustion, as if he had gone through a serious illness, or a night without sleep. He claims that he is able only by the use of the strongest will-power and effort, which results in further exhaustion, to continue his work at such times. In neurasthenics very slight emotions will have the same result. The explanation of fatigue of this kind must be psychological. To this I will return.

But even in muscular fatigue the question remains: Is the sensation of fatigue due to the action of the poison on the muscles, by which indirectly the brain is excited to have the feeling? or is it due to the action of the poison on the sensory centres of the brain itself? or is it a result of the effort of the brain to stimulate the weakened muscles? or is the fatigue sensation due to some other mechanism, like a rearrangement of cerebral associations, such as probably occurs in hysteria? This is a problem of physiological fatigue which still remains to be determined. At present I think we can only say that the sensation of fatigue is a feeling that is generally induced — but not always — by expenditure of effort, and that, under physiological and some pathological conditions, it is an index of what, in the want of precise knowledge, we call exhaustion.

Exactly why the sensation of fatigue occurs, or what this is, is not known. The observations of Hodge, though often quoted, really throw little light on the

² Mosso (*La Fatigue, Intellectuelle et Physique*) has also shown that the blood of a dog whose muscles have been tetanized by electrical stimulation, if injected into another dog, causes increased heart action and respiration.

question. Hodge showed that after physical exertion certain changes, recognizable to the eye, could be demonstrated in the nerve cells, but such changes in no way give any explanation of the sensation of fatigue. In neurasthenia, for some reason, the feeling of fatigue is brought on by an amount of exertion which would not be felt by the same individual in health. The conditions thus approximate those of old age in healthy persons, and the physiologico-anatomical basis may be the same. In such cases we must assume that the energy-holding compounds have been early exhausted or the waste products have not been normally carried off, or both. In the normal individual, experiments have shown that the nerve and muscle cells have the capacity to recharge themselves, or restore their expenditure of energy, to use metaphorical terms, and to discharge into the blood current the waste toxic materials during activity; but this power exists only within certain limits, and after a certain amount of expenditure of effort is lost — that is, muscular fatigue occurs. As I have said, the feeling of fatigue in normal persons, and in many pathological cases, is an index of what is clinically known as exhaustion.

But every clinician of experience must have observed that in many cases it cannot be an index of this condition, but is of purely psychical origin, a false sensation as it were, which stands in the same relation to true fatigue that psychical pains stand to pains that have their origin in physical changes in tissue. It would seem that the sensation of fatigue is capable of being excited centrally, by association with other feelings, and then becomes a quasi-hallucination, like many other subjective symptoms. In other words, in a very large number of cases of hysteria and neurasthenia, the feeling of fatigue is in no sense the expression of exhaustion, and in no way indicates that the muscles or nerve centres, or both, have been over-used or have not repaired themselves. This sensation in such cases is a pure habit symptom, or if not a habit symptom, one that is excited by central or other stimuli. The recognition of this fact is, from a therapeutic point of view, of the greatest importance; for when recognized it will often enable us to effect a cure of the patient that otherwise would be difficult.

Fatigue of this kind may be spoken of as false fatigue, and when present it is important that we refrain from measures which experience teaches tend to cultivate it and encourage its persistence. As evidence of the psychical character and falseness of the sensation of fatigue, I will cite the two following cases, which I select because they are at present under observation, and because they are examples of as extreme forms of hysterical neurasthenia as I have ever seen.

In one of these cases I had recognized the psychical nature of the fatigue complained of, and had always insisted upon its falseness to the patient; in the other I failed to recognize this, but had considered the case hopelessly incurable and had given that opinion to the friends. This second case seemed to be one of those bad nervous constitutions in consequence of which the patient lives a life of wretchedness and constant suffering with inability to do anything without distressing results. In both cases, after exhausting almost every other resource, I tried hypnotic suggestion.

The first, Mrs. X, went into light hypnosis; and the suggestion was given, amongst others, that her fatigue was entirely false and that she could exercise, etc., without feeling it. The result was that the feeling of fatigue immediately began to disappear; and after two or three sittings she was able to walk a couple of miles, ride a bicycle, take gymnastics, etc., without any feeling of tire, although previously walking a block completely exhausted her. Other sensory symptoms were removed in the same way.

The second case, Miss Y, who also suffered from distressing pains of various kinds, after one or two suggestions was able to walk one or two miles — more than I wished her to — although previous to this almost any mental or physical effort caused great fatigue as well as distressing pain. Such cases, of course, tend to relapse; but nevertheless the immediate disappearance of fatigue for quite extended periods of time after a few verbal suggestions can only be explained by their psychical origin. I am convinced that fatigue of this character is far more common than is realized by the profession in every-day cases of hysteria and neurasthenia. Statements of this kind are, of course, difficult to prove, and the only measure we have of them is the result of treatment; and this, in my own experience, has satisfied me of their correctness. On the other hand, the opposite of this is also true, namely, the failure to recognize this fact has, in my own hands as well as those of others, tended to cultivate a habit of fatigue and to prevent recovery.

As to the pathology of false fatigue, we are not yet justified in more than speculating about it. It is possible that this fatigue has a psychical basis similar to that fatigue and general weakness which follow some of the emotions and which are well recognized to be manifestations of these emotions. This has already been spoken of; while in normal individuals it is only very extreme emotions that are followed by this state, in neurasthenics it is not uncommon to see very slight emotional states followed by extreme prostration. A cross word, or disappointment, or a fit of anger, will induce extreme fatigue of this kind. In such cases there may be what Dr. Putnam calls a re-arrangement of the cerebral associations, an inhibition of certain cortical centres, and a reversion to less complex combinations. As a sequence of this process, clinical fatigue may result just as may anesthesia or paralysis, or it may be a manifestation of the emotions, as blushing and palpitation are manifestations and concomitants of certain ideas. Now the false fatigue of neurasthenia and hysteria may have an analogous basis, and in this case its disappearance under psychical influences would be explained by a restoration of the previous cerebral associations.

In other cases which are not uncommon, it seems as if the sensation of fatigue after exertion were made persistent through the general idea, instilled in the mind of the patient by friends and physician, that his or her disability is due to an organic though rather mystical disease process of some badly understood kind, and that the disease will be made worse and the patient's recovery retarded by anything that increases the discomfort of the patient. Very often such persons do not mind their symptoms, do not mind pain or fatigue, if they can feel assured that the induction of such fatigue will not in any way increase their disease and do them permanent injury. The physician does not always take in that in neurasthenia and hysteria the patient

feels very much as a person with inflammation of the knee-joint feels regarding the use of his leg. He does not mind the pain so much as he does the fact that walking on the leg may do permanent damage from which he cannot recover.

So not a few cases of neurasthenia have admitted to me they would not mind fatigue and other symptoms if they could feel assured that doing things that bring them on would not do permanent damage. After assuring such patients of the impossibility of doing themselves any harm I have found frequently that the state of fatigue has disappeared. In such cases the sensation of fatigue is probably in some way indirectly the resultant of this false idea of the nature of the neurosis.

Probably allied to the fatigue following the emotions is that which is a very common manifestation of the hysterical state in association with various other stigmata like paralysis and anesthesia. With the development of the hysterical state after a nervous shock, the condition of fatigue at once appears. This is a false fatigue, in the sense that it is not the result of mechanical work as in physiological fatigue. Of course, it is a true fatigue, as is all fatigue, in the sense that the subject is incapacitated for work and feels exhausted; but there is no probable accumulation of waste products, and the fatigue may be readily removed by therapeutic agents. For this reason it is not likely that this fatigue is due to the exhaustion of energy-holding compounds. The mechanism is not plain, but it probably belongs to the same class of phenomena as hysterical paralysis and anesthesia, about the nature of which we are still in the dark. It may be that the physiological associations of the brain are such that the sensory cortical areas for fatigue are so associated with the motor areas that the inhibition of the latter necessarily excites the former, just as the same stimulus that induces palpitation of the heart will cause vaso-motor spasm, or it may have the same pathology as emotion fatigue.

(To be continued.)

PATHOLOGY AND TREATMENT OF DYSMENORRHEA ASSOCIATED WITH ANTEFLEXION OF THE UTERUS.¹

BY F. H. DAVENPORT, M.D., BOSTON.

In spite of a good deal of discussion of this subject, I do not believe the last word has been said, and I desire to give what I believe to be the cause of the symptoms which occur in connection with this affection of the uterus, and describe the treatment which I have found most efficacious.

By way of preface I would say that anteflexion of the womb is not a displacement of the organ, but a deformity. It is the persistence of a type which seems to be normal in fetal life. At that time, owing to the disproportionate size of the cervix and the crowding of the organs in the small pelvis, the body becomes bent forward just above the internal os. This is an almost constant condition before birth. As the child develops in the years before puberty, the increased room in the pelvis should, and usually does, admit of a straightening out of the organ, so that it assumes its normal position of moderate anteversion. If, however, there is a lack of proper development of the whole body from poor food, want of exercise, or con-

stitutional delicacy, the womb shares in this faulty condition, and we have a persistence of the fetal type, namely, anteflexion. The association of this deformity with a lack of harmonious development of the whole system explains why in these cases the uterus is usually small, lacking in tone, and menstruation is very apt to come on later than the average age, and is often scanty.

The spirit of refined analysis, which is perhaps carried too far nowadays, has led to a division of anteflexion into three varieties, namely, of the body, of the neck, and of both body and neck. Such a classification is unnecessary, since where there are symptoms, they are alike in all varieties, varying if at all only in degree. The essential feature is a bend at or just above the internal os, so that the organ instead of having a slight curve throughout its whole extent, is bent at a more or less pronounced angle at one point. This bend can be appreciated by the examining finger in the vagina, the angle which the cervix and body make being sometimes so sharp that the finger lies in a groove with the body on one side in contact with the palmar surface of the finger, and the cervix against the finger-nail. The fundus can be felt through the anterior vaginal wall where the bladder lies. Associated with this flexion are other characteristics which deserve mention. I have already referred to the fact that the uterus is usually small and poorly developed. This is true of both body and cervix. Sometimes the organ is smaller in all dimensions; at other times it is of normal length, but the body is thin both antero-posteriorly and laterally. It feels as if it were drawn out, and stretched thin in consequence.

The cervix, besides being small, differs somewhat in shape from the normal. It is more pointed and conical, and the os externum is smaller and rounder.

On the passage of the probe two facts are noted as being quite constantly present: one is that there is a narrowing at the internal os, the other that the passage of the instrument by the internal os causes more pain than it should. The degree of narrowing of the canal at the inner os may be determined by the trial of several probes or sounds of different calibre. Having found the proper curve, which is sometimes a difficult matter, larger sounds are tried until there is a hitch. A little firm pressure will usually suffice to overcome the resistance. If the tissues are of normal consistency, the probe will pass on moderate pressure and without any abrupt giving way; if, on the other hand, as is not infrequently the case, the tissues in the immediate neighborhood of the inner os have become changed in consistency, and grown denser, there will be more resistance, and the probe will pass with a jerk.

The second fact observed in these cases is the increased sensitiveness to the passage of the sound. This is confined to the region of the os internum, and is not due to the stretching, since it is excited by the slightest touch of the finest probe. Just as soon as the instrument has reached the narrowest part, which is the point of flexion, the patient shows signs of considerable pain, and on being questioned will describe it as the same in character as that which she experiences when unwell. It is often accompanied by a feeling of nausea or faintness.

This establishes the diagnosis of anteflexion of the uterus with narrowing and sensitiveness at the internal os.

The history of these cases is singularly characteristic

¹ Read before the Obstetrical Society of Boston, February 15, 1898.

and typical. The dysmenorrhea shows itself at the first menstrual epoch, and persists with each recurring month. It may therefore, in a sense, be called congenital. As a rule, it gradually becomes more pronounced as time goes on, and proportionately harder to bear.

The ordinary history of a menstrual period is as follows: The pain usually begins with the flow. If there are prodromal symptoms, they are more a general feeling of increased nervousness, congestion of the head, and local discomfort rather than pain. With the appearance of the flow there is pain. This is usually felt in the lower abdomen, more rarely in the back. It is mainly a dull ache, with at times sharp exacerbations. Patients describe it variously, as a forcing, boring, twisting sensation. It increases in intensity for from six to twelve hours, maintains its height for a few hours, and then gradually fades away and disappears. The flow at first is scanty, abnormally so, and coincident with its increase comes the relief to the pain, so that by the time the flow is at its height the pain has usually gone. If the amount is greater in the beginning, there may be the formation of small clots. This fact usually modifies the character of the pain. It becomes spasmodic in character, simulating little labor pains, and the expulsion of a small clot is followed by temporary relief.

The pain may be very intense, amounting to agony, the patient writhing on the bed in vain attempts to get relief. Often there is nausea, sometimes vomiting. Frequent micturition is a very common accompaniment, and occasionally diarrhea.

For the first few years the amount of suffering does not vary much; but if there is any change, it is apt to be a slight increase in severity. After some years, the usual history is that with each succeeding year there is greater suffering. This may be partly due to the fact that after years of such intense periodical pain the power of resistance becomes lessened, and the recuperative force weakened. In youth, and in persons of a fair degree of health, the strain of the monthly attack may be well borne, and apparently completely recovered from, in a few days; but as time goes on, it becomes more and more difficult to rally, the strain becomes greater, the pain at the time seems more severe because the weakened nervous system bears it less well, and it takes the greater part or the whole of the intermenstrual period to recuperate. This means a gradual deterioration of the whole system and an impairment of the general health, which is a feature in many of these cases.

The other prominent symptom, which is of secondary importance only to the dysmenorrhea, is sterility. While pregnancy is not impossible in ante flexion, it is not likely to occur and in my experience it is the most frequent cause.

These various symptoms, particularly the dysmenorrhea, can be explained by certain facts in the pathology of this affection, a phase of the subject which we will now consider a little more at length.

The occurrence of pain in connection with an ante flexion of the uterus, and a narrowing of the canal, has led to the view that in consequence of the bending of the canal there is an obstruction to the free flow of blood from the uterus, and the pain is the result of the attempt of the organ to expel it. This form has therefore been called obstructive dysmenorrhea. Sometimes the term spasmodic has been added as

expressing the same thing; as a fact, they are by no means the same. I question very much whether there is obstructive dysmenorrhea in the true sense of the term. It may be a temporary condition, as will be shown later; but the narrowing of the canal in itself is probably never sufficient to so obstruct the flow of blood as to cause the violent pain which is characteristic of this disease. Spasmodic dysmenorrhea, on the other hand, has a clearly defined and well recognized type where the blood is exuded in such relatively large quantities or under such conditions that it coagulates. The efforts of the uterus to force a small firm body through the narrowed and sensitive canal are accompanied by violent and spasmodic and intermittent pains, which are characteristic of this type of dysmenorrhea. This form, however, while often present in ante flexion of the uterus, is not confined to that condition, but may occur quite independently of it.

The explanation which in the light of the existing conditions seems to me to most adequately explain the pain is as follows: In the first place there is a distinct and real narrowing of the canal at the internal os. This is amply and clearly demonstrated by the passage of instruments. This narrowing is, however, never sufficient in itself to cause any real obstruction to the passage of the menstrual blood; when we reflect through how narrow and tortuous a canal fluid will find its way, and remember that at the time of greatest pain the flow is scanty, it must be evident that pure mechanical obstruction cannot play any rôle.

There are, however, two conditions present which are responsible for the pain. One is the swelling of the uterine mucosa which accompanies the flow, the other the condition of abnormal sensitiveness at the internal os. The swelling of the membrane while not sufficient to close the canal does undoubtedly narrow its calibre. We have seen that the tissues at the os internum are apt to be more rigid than normal and the nerves in an extremely hyperesthetic state. The increased congestion which accompanies the onset of menstruation and the tension of the tissues generally irritate the nerves and aggravate the pain. This is the case during the first few hours of the flow. Later the tissues become relaxed, and the canal to a certain extent straightened and the pain disappears. This accounts for those observations where the passage of the probe or sound during menstruation has shown a relaxed and more patulous condition of the canal. After a varying time from 12 to 24 hours, this relaxation has occurred, the flow is more profuse, and the pain has largely ceased.

It will be seen that I have not considered endometritis as an important factor in my explanation of the pathology of these cases. This is contrary to a large number of observers who look upon endometritis as the one essential feature, and ignore the importance of the narrowing of the canal. I do not deny that in a small proportion of cases endometritis may be present, and show itself by the usual signs of that disease, particularly increased discharge and tendency to bleeding, a result of the hyperplastic condition of the mucous membrane.

But in the majority of such cases, there are no such symptoms present. During the intermenstrual periods there are no local symptoms whatever. In fact I have been struck with the freedom from trouble which such patients enjoy except at the time

of the catamenia. Possibly some observers may look upon the abnormal sensitiveness at the internal os as evidence of endometritis, but such a view seems to me untenable. The explanation which I have already given seems to me the reasonable one.

Our treatment should be directed to the solution of two problems: first, to enlarge and straighten the canal; second, to diminish the sensitiveness at the inner os. It is hopeless to expect that the uterus can ever be made normal and that the flexion can be absolutely cured. The most that can be hoped for is some straightening of the canal. The necessity for this has been clearly seen ever since the malformation has been recognized, and various methods of treatment have been devised. Among the first was dissection of the cervix, which consisted in nicking the internal os, and enlarging the cervical canal backwards, accompanied by some dilatation. This was only occasionally successful, as the dysmenorrhea often recurred, and it left the cervix in a more or less deformed condition. It is justly relegated to a more or less complete obscurity.

Attempts to straighten the cervix by vaginal operations, such as Dudley advocated, have in my hands proved disappointing, and the explanation has been that the operation has not been directed to the seat of the trouble, namely, the internal os uteri.

Dilatation has, of course, been almost universally recognized as the appropriate treatment, and temporary dilatation without ether has so often proved of value that in some form of other it has been generally tried. The cause of failure has been the tendency of the tissues to contract, and to cause a return of the old trouble. The desideratum has therefore seemed to be to devise some method which will without danger secure as much permanency as possible.

The method I employ is not new in principles, but is the result of experience in trying to secure the best results. The essential feature is the use of a stem or plug sewn into the uterus, and allowed to remain for several weeks. The steps of the operation are as follows: Under strict antiseptic precautions, the uterus is dilated, first, with Hanks hard-rubber dilators, and then with the steel dilator of Ellinger, until it will easily admit the largest number of Hanks—which has a diameter of one centimetre. Prolonged moderate dilatation is better than more rapid extreme stretching, as by the former method the muscles are more thoroughly paralyzed, and less likely to contract immediately. To obviate the difficulty of introducing the fairly straight dilators through the curved canal, I have had some of the smaller numbers of Hanks series given a greater curve.

After thorough dilatation the uterus is carefully curetted throughout its whole extent, then irrigated through Burrage's speculum. A hard-rubber plug of the following description is then introduced. It is solid, with a flange at the lower end perforated by four equidistant holes corresponding to the anterior, posterior and lateral aspects. It has a slight anterior curve. This is pushed into place in the canal and attached to the cervix by four silver-wire sutures which pass through the cervical tissue, and the holes in the flange provided for the purpose. I found by experience that four sutures were necessary, as with two only the uterus occasionally was able to force the plug out by its contractions, the sutures cutting through.

I prefer a solid plug because a hollow tube practically does not drain, the blood and secretions collecting in it and increasing the danger of sepsis. With full dilatation, the uterus drains by the side of the plug, and if there is a temporary failure of the secretions to pass off, this is usually overcome by the contractions of the uterus in a few hours.

The patient is usually kept in bed a week. She is then allowed to get gradually about and to resume her ordinary life in a few days. She is told that while the plug remains in the uterus, she should avoid unusual exertion or fatigue. After a period of from four to six weeks, during which one menstrual period has been passed, the plug is removed by cutting the sutures.

As a rule, there is little or no general disturbance from this operation. Severe pain is the rule for a few hours after the dilatation, but it is often not so bad as at an ordinary menstruation, and subsides in a few hours. There is sometimes a feeling of discomfort at intervals all the time the plug is worn, but it does not usually interfere with the patient's going about as usual.

The question of drainage is the most important. In not more than five or six cases out of a hundred has there been any failure to drain thoroughly, as would be shown by a rise in the temperature; and in the most of these it has been a matter of only a few hours before the uterus succeeded in expelling the small amount of retained secretions by the side of the tube, and the temperature has returned to normal. Twice, or at the most three times, I have removed the tube within the first week; but in none of these was there any evidence of sepsis. I think with full dilatation, and care as regards the diet and bowels, there need be no fear of any subsequent trouble.

The results of the operation have been satisfactory, more so in my hands than by any other method of operation. Fully seventy-five or eighty per cent. have been wholly relieved, or made so comfortable that they feel satisfied. Of the remaining twenty or twenty-five per cent., the most have shown some improvement, and in only a very few instances has the operation been a failure.

Clinical Department.

TWO CASES OF CÆSAREAN SECTION.¹

BY G. H. WASHBURN, M.D., BOSTON.

MOST of the cases that have been reported thus far have been done under favorable circumstances. These have been considered worthy of notice because they were done under adverse circumstances. There was no hospital with its completeness of conveniences and its excellent nursing. There were not even the conveniences of a luxurious home. The operations were both done in country tenements.

In one case, to be sure, the house was new and the patient's family the first tenant; but in the other the house was old, the tenement a very small one of two rooms. The room where the woman was sick was about seven by fourteen feet, and contained a large double bed, bureau, washstand, table, chairs and

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trunk. The time of the operation was night, and the illumination consisted of the light of a kerosene lamp and a candle with a reflector.

The first case occurred in Manchester-by-the-Sea during the time of my summer's practice. I was called in consultation by Dr. Blaisdell, the older of the physicians of the village, to see a woman who had been in labor for about twenty-four hours. She was about thirty-eight years old, had recently married for the first time, and this was her first pregnancy.

The labor was at term, and the pains had been strong but did not seem to accomplish much. The os was so slow in dilating that the doctor had tried to dilate artificially, but found much resistance, and found also that the child's head did not seem to engage at the brim, or come down low enough to be an efficient dilator of the cervix.

It was decided that the pelvis was too small to allow the large head present to pass. The obstetrical conjugate was a little over three inches. Fetal heart was strong and good. Preparations were at once begun for operation. A few of the things in the room were removed and an operating-table improvised by laying an ironing-board across a trunk and two boxes. Over this was thrown a boiled sheet. Sheets and towels were sterilized by boiling in the wash-boiler. Dr. James M. Jackson very ably assisted me, and Dr. Glendenning, of Manchester, gave the ether. Dr. Blaisdell was ready to take the baby and resuscitate it. The patient's abdomen was scrubbed and rendered aseptic with permanganate and oxalic solutions followed with alcohol, ether and finally a lysol solution.

The abdomen was opened by a long incision in the median line, through which the uterus was lifted, or rather squeezed, out of the peritoneal cavity and packed around with hot, wet towels. A rubber tube was slipped about the cervix to be used in emergency, but dependence was placed on manual compression of the arteries in the broad ligaments, by an assistant. With one hand compressing each broad ligament, the bleeding can be absolutely controlled. The uterus was now cut in the median line, the cut passing through the placenta.

The child was seized by the head and neck and lifted out, the cord cut, and the child handed to the doctor to be started breathing. The placenta and membranes were torn off rapidly; the uterus washed out with hot lysol solution, the washing being down through the cervix and vagina; a strip of iodoform gauze was packed into the uterus and down through into the vagina. The uterus was sewed up by a double row of sutures. The muscular portion was sewed with No. 3 Leavens catgut, the stitches being about an inch apart. The sero-serous layer was sewed by a continuous suture of smaller size catgut. This prevented absolutely any bleeding from the uterus, which was well retracted. The uterus was returned now to the abdominal cavity, and the wall united by silk-worm-gut sutures, and a simple aseptic dressing applied.

The patient was returned to bed in excellent condition. The baby was resuscitated quite readily, and was found to weigh eleven pounds.

The convalescence was not absolutely good at first, owing to the fact, that in the effort to be rapid in stripping off the membranes from the uterus some portions tore off and were left inside. These pieces

came away in a couple of days after an intra-uterine douche; and after that the progress was good. She was up and about in five weeks, and three months later considered herself perfectly well. She felt so well that she got out of bed several times when the nurse was out of the room, during the first ten days.

The second case was in the town of Hamilton, a patient of Dr. Thayer's. The woman, a healthy Irish woman, apparently of good build, had been in labor for a day and a half without much progress, when he called Dr. James M. Jackson in consultation. After some delay he put on high forceps, but could not bring down the head at all. I was sent for, and found the woman somewhat tired from the long-continued labor, but otherwise in good condition. The fetal heart was of good strength and regularity. Conjugate diameter three inches, os fully dilated, pains of fair strength, but accomplishing nothing.

A Cæsarean operation was decided upon and preparations made at once. A fourth assistant, Dr. Swan, of Beverly, was sent for and arrived just in time to help resuscitate the baby. Sheets and towels were boiled and the same antiseptic preparations made as in the last case. Bleeding was controlled by an assistant holding the arteries in the broad ligament.

A little more time was taken in this case to peel off the membranes from the uterine wall. A lysol solution was used to wash out the uterus down through the vagina, and a strip of iodoform gauze passed through. The uterus retracted well. To prevent the collection of clots in the uterus, a good-sized strip of iodoform gauze was packed into the uterus while the stitches were being passed, and while the uterine muscle was retracting. This was taken out before the deep layer of stitches was tied. Leavens catgut, No. 3, was used for the deep sutures; No. 1 for the sero-serous continuous suture. As soon as the deep sutures were tied the compression of the broad ligaments was relaxed. The second layer of suturing made everything perfectly tight and dry.

The details of the operation were practically the same as in the first. The baby was resuscitated with more difficulty. The convalescence was excellent and uneventful. There was a slight rise of temperature on the second day, which promptly disappeared after free emptying of the bowels. At last accounts mother and baby were both very well.

TWO CASES ILLUSTRATING THE VALUE OF EXPLORATORY LAPAROTOMY.¹

APPENDICITIS. — VOMITING OF PREGNANCY.

BY EDWARD REYNOLDS, M.D.

CASE I. Mrs. C., seen with Dr. A. L. Flanders, of Jamaica Plain, on December 2, 1897. Forty-eight years old; catamenia ceased one year before. Has had six children. Has been separated from her husband for ten years, during which time she has considered herself in absolutely good health except for chronic constipation. Was thoroughly well on the morning of November 21st, but towards afternoon became chilly and feverish, and felt her clothes tight around the abdomen. The next day remained in bed, with sharp pain in the iliac region. On November 23d

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was seen by Dr. Flanders, with general abdominal tenderness and a temperature of 101.5° , which rose to 105° in the afternoon. Constipated. Both tenderness and temperature gradually decreased during the succeeding four days, and the bowels were then freely opened by a cathartic. A few days later, during apparent convalescence, moderate vesical tenesmus appeared, but decreased under medicinal treatment. December 2d there was a sudden recurrence of temperature to 102° , and with it renewed frequency of urination.

December 2d, when I first saw her, I found the whole pelvis filled with a resistant mass, of rounded outline, from the midst of which the cervix uteri seemed to project. The mass was largest on the right, and was generally sensitive and tense. On abdominal palpation there was moderate tenderness in the right iliac region, but no mass could be felt. I thought that the diagnosis lay between a local peritonitis around a probably necrotic tumor (fibroid or ovarian) and a pelvic abscess of cause unknown, appendiceal abscess being of course included. I recommended her immediate removal to a private hospital for operation.

On December 3d, the next morning, the urine contained a large amount of pus and the tumor seemed somewhat less tense, temperature 102° . The tongue was excessively furred and dry, the patient's general condition far from good and somewhat worse than on the preceding day. Under ether the uterus could be distinctly outlined. There was some bogginess on the left side of the pelvis, and a rounded, oblong mass, the size of a very large orange, could be plainly made out on the right side and very high up, the feeling and situation suggesting an ovarian cyst rather than any other lesion. The abdomen was opened by a small median incision, when the cecum was seen to be adherent to the uterus, roofing in the right side of the pelvis. The whole pelvis, both right and left, was walled off by very old, tense and white adhesions, that looked much tougher than the intestinal wall. It seemed to me that any attempt to disturb them would result in the sort of prolonged operation which could hardly fail to be fatal in the poor condition of the patient. I therefore closed the abdominal wound with a sponge held in place by a single provisional catgut suture, and turning to the vagina made a broad incision through the vaginal mucous membrane to the right of the cervix and carried this upward by blunt dissection between the layers of the broad ligament nearly to the level of the fundus uteri, working mainly with the finger. At this level and at a little distance out from the uterus toward the side of the pelvis the finger came into close contact with the oblong mass previously felt. A pair of scissors was easily thrust into it under the guidance of the touch and from four to six ounces of foul-smelling pus and fecal matter escaped. The opening was enlarged by the fingers, the cavity and vaginal wound were packed with iodoform gauze, and the abdominal wound was reopened by Dr. Flanders, whose hands had been kept free from the pus. The adhesions were carefully looked over and it being found that no damage had been done to them, he closed the abdominal wound.

On the following day a large drainage-tube was inserted in the vaginal wound, and it was washed out daily for about three weeks, at the end of which time the patient went home with a small sinus discharging but a few drops of pus. The temperature fell imme-

diately after the operation, and the patient's general condition rapidly improved. At irregular intervals during the convalescence considerable quantities of pus appeared in the urine, but a careful visual inspection of the bladder by the Kelly method immediately before the patient's discharge failed to show any abnormality and the source of this discharge was never known. (As the urine was not drawn by catheter the pus may possibly have been an admixture from the vagina.) The sinus closed a few days after the patient returned home, and she has been well ever since.

CASE II. Seen December 11, 1897, with Dr. McKenna, of Jamaica Plain. Mrs. J., twenty-nine years old, the mother of five children. Has suffered with severe vomiting during each of her previous pregnancies, but it has always terminated abruptly at about three months. Is now two and a half months pregnant, and has been vomiting almost incessantly for six weeks. She had had no efficient treatment until seen by Dr. McKenna on December 9th.

When seen by me on December 11th she was much emaciated and very feeble, with a weak and irregular pulse of 135, and vomiting a greenish fluid almost incessantly. My notes say: "Has been in bed six days and has been much constipated. No motion of the bowels for the last three days. History otherwise very unreliable. Might easily have forgotten or failed to observe very prominent symptoms." On vaginal examination the size of the uterus corresponded to the alleged period of pregnancy. An oblong, dense mass, perhaps half an inch in diameter and two inches long, extended from the left cornu down the left posterior and lateral edge of the uterus. This mass was not especially sensitive, and she had suffered little or no pain. The diagnosis was thought to lie between a fibroid and a chronic enlargement of the left tube. The patient was excessively weak. I felt grave doubts as to her surviving any operative interference or even removal to the city; but I felt certain that no efficient treatment could be carried out in her home. She was brought into the Deaconesses Hospital by ambulance that afternoon, arriving with a pulse a little over 140. She was at once put onto enemata of one egg, two ounces of peptonized milk and an ounce of whiskey, made up to eight ounces with salt solution and given every two hours; nothing by the mouth.

December 12th, at 10 A. M., her pulse was 125, very compressible and weak; vomiting incessantly. Her general condition was a little better, and I thought it wise to seize the occasion of this improvement and empty the uterus while there was a possible chance of her withstanding the shock. She was placed upon the table, without ether, and a very rigid cervix was with difficulty dilated to a degree to permit the passage of a small curette. The curette entered three and a half inches, turning slightly to the patient's right and not seeming to be free in a cavity. No fetus felt. The patient's condition was so bad that I did not dare to risk a slow dilation of the os to a degree sufficient to admit the finger. Upon the other hand, with the possibility that the complicating mass might be a distended tube, and even if it were a fibroid, with an entire uncertainty as to its extent and relation to the peritoneum and uterine wall I felt unwilling to take the risk of a forcible dilatation.

Feeling that the patient's life depended upon an immediate emptying of the uterus, and that the possibility of that depended upon an exact diagnosis, I

had her etherized and made a rapid incision into the abdomen, lifted the walls as the patient was raised into Trendelenburg's posture, saw that the mass was a fibroid, that the uterus was probably pregnant at about three months, and immediately closed the abdomen, the time of the abdominal operation from the first cut to the tying of the last suture being exactly four minutes. The cervix was then seized with double hooks, and rapidly and forcibly dilated against great resistance with Wylie's steel dilators until one finger could be forced through the os and to the fundus of the uterus. The uterine cavity was found to be somewhat altered in shape and encroached upon by the fibroid, which was interstitial. A small ovum was found at the fundus of the uterus above the fibroid and was easily dislodged and extracted. The placenta was nearly formed, the fetus was probably crushed during the manipulation, at all events was not seen. The patient was put to bed with a pulse of but little over 100, and of much better quality than before the operation. On her recovery from ether the pulse had fallen to 90, and her expression was much less drawn and anxious.

It is worthy of note that the pulse was not varied a beat by the abdominal incision. Her next temperature was normal, the pulse at the same time 86. She never vomited again, took solid nourishment within three days, and went home a fortnight later, having gained greatly in flesh and appearance during her stay in the hospital. I saw her on January 12th in thoroughly good health. The involution of the uterus made the fibroid much larger than it had appeared at the time of the operation, and much more thoroughly subperitoneal. It was now about the size of a large hen's egg, and almost its entire substance projected beyond the uterine wall.

These two cases, though so dissimilar in their nature, to my mind illustrate particularly well at once the harmlessness of a mere abdominal incision and the great assistance which the knowledge gained in this way may prove to the surgeon in attacking the disease by the vaginal route. In the first case the diagnosis was uncertain and the vaginal method of attack seemed unwise, if not impossible, until I was in possession of the information gathered from the abdominal incision. In the second case the patient's condition was so bad that any prolonged and deliberate operating would in my judgment have been almost certainly fatal, and the conditions were such that without the information gained by a glimpse into the abdomen I should have regarded any forced and rapid work as most unwarrantably reckless.

TWO CASES OF TETANUS, BOTH TREATED WITH ANTI-TETANIC SERUM, BOTH FATAL.

REPORTED BY JOHN HOMANS, M.D.,
Visiting Surgeon to the Massachusetts General Hospital, Boston.

W. McD. and J. B. S., railroad employees, were brought to the hospital on the 21st and 23d of March, 1898, respectively. One had been run over on the Albany Railroad twenty minutes before entrance, and the other on the New York, New Haven & Hartford Railroad two hours before. Both were in a state of extreme shock forbidding any operative procedures beyond tying vessels and removing tourniquets.

They were unintentionally put in adjoining rooms. The first-named had both legs crushed and the second

one leg. On the 23d McD. had improved enough to submit to amputation of the legs, and on the 25th J. B. S.'s thigh was amputated. The flaps sloughed more or less. Both suffered considerable pain.

On March 30th McD. complained of stiffness of jaw; on the 31st there was less stiffness, but there was some pain on swallowing, and he complained that his face was sore.

April 1st there was pain in the right stump, which twitched frequently; tetanic symptoms increased; he got, at 1 P. M., 40 c. c. tetanic antitoxin, and at 8 P. M., 40 c. c. (Roux).

April 2d, sharp spasmodic pains in the right stump; little sleep; one mild general convulsion. In morning less marked rigidity; asked for beer, which he swallowed. At 2.45 P. M., 60 c. c. antitoxin (procured from the Massachusetts Board of Health). Spasms less marked in P. M., but occurring every few minutes. At 8 P. M., 120 c. c. antitoxin (State Board of Health).

April 3d, fair night; several hours sleep, but cried at times from pain in stump. Temperature rose. Spasms more frequent. In A. M. muscles of neck more relaxed. Swallowing easier; takes considerable liquid nourishment. At 3 P. M., 60 c. c. antitoxin. Spasms became more frequent; tendency to opisthotonos, but not marked. Slight spasmodic contraction of arms. Passes urine with difficulty. Temperature in A. M., 105°; later it fell to 101°. Pulse good.

April 4th, patient slept about four hours during night from the effects of morphia and chloral. Temperature in A. M., 102°. Spasms frequent; neck muscles less rigid; mouth opened one inch, and chin could be brought nearly to sternum by flexing head on trunk. Spasms increasing in intensity. At 11.30, chloroform inhalation to relieve pain and spasms. Quiet for half an hour, when spasms returned. At 2.30, 60 c. c. antitoxin; and at 8 P. M., 60 c. c. antitoxin. Chloroform at 1 A. M. Temperature at 5 A. M., 104.2°. At 5.30 urine passed involuntarily. At 9 A. M. temperature 105.4°; only partially conscious. Pulse more rapid and feeble. At 3.55 died quietly, not in spasm. At time of death the wounds were clean and healthy.

J. B. S.'s thigh was amputated on March 25th one and a half inches above the joint. On the 27th his condition had markedly improved, but there was some sloughing of the flaps.

On April 1st, at 4 A. M., nine days after the accident and seven after the operation, he complained of difficulty in opening the mouth and of stiffness of the neck. At 8.30 the mouth could be opened only half an inch, and swallowing was difficult; this increased during the day, as did the rigidity of the sternomastoids. At 1 P. M. 25 c. c. of tetanus antitoxin were given, and at 8 P. M. 55 c. c. The wound was bathed in foul pus.

At 2.30 A. M. on April 2d general convulsions began, and during the night rigidity of the thorax. The patient became cyanotic, the pulse weak and irregular. At 9.30 A. M. an attempt to swallow water brought on spasm of the glottis and extreme cyanosis. Death occurred at 12 M.

The bacteriological reports are appended:

Cultures on blood serum made from stump of leg of W. McD. on April 1, 1898. In twenty-four hours a luxuriant growth liquefying the medium. After ninety-six hours in the incubator, microscopic examination of cover-glass shows the typical pinhead rods of the tetanus bacillus. Many other bacilli and many coccus forms are seen. The

growth in the culture of a spore-bearing rod has so far prevented the isolation of the tetanus bacillus in pure culture.

Cultures on blood serum made from stump of thigh of J. B. S., on April 1, 1898. In twenty-four hours a luxuriant growth, made up for the greater part of round, yellow colonies, and showing a slight amount of liquefaction of the medium. After one hundred and twenty hours in the incubator, microscopic examination of cover-glass shows a few of the typical pinhead rods of the tetanus bacillus. Many other bacilli and many coccus forms present. A spore-bearing rod present in the growth has so far prevented the isolation in pure culture of the tetanus bacillus.

These cases present many points of interest, as bearing upon the efficacy of the antitoxin treatment, and also of the advisability of amputation in the treatment of tetanus. In regard to the last point, amputation is advocated by no less an authority than Rose as the most effective method of treatment of tetanus, since it most thoroughly gets rid of the focus of infection. The question might be asked, Of what use can amputation be after the symptoms have appeared, if in these cases, in both of which it was performed, seven days before the symptoms appeared, it apparently had no effect? The answer is, that in both cases the condition of shock contraindicated operation until two days after the accident, and the tetanus bacilli had probably been allowed to gain a firm foothold in the tissues. The amputations were performed without thought of prophylaxis against tetanus; and the flaps, which by their sloughing and suppuration gave evidence of infection with pyogenic bacilli, were undoubtedly infected with tetanus bacilli above the point where amputation was performed. Therefore, these cases cannot be said to militate against amputation in the treatment of tetanus in suitable cases.

With regard to the antitoxin treatment, the first case received on the second day after the symptoms appeared 80 c. c. of Roux's antitoxin, on the fourth day 180 c. c. Of antitoxin prepared by the State Board of Health he was given on the fifth day 60 c. c., and sixth day 180 c. c. The second case received 80 c. c. (State Board of Health) on the day the symptoms appeared. Both these cases were apparently unaffected by the antitoxin. The cases belonged rather to the acute than the chronic form of the disease, the type of cases in which the antitoxin treatment has given the least favorable results.

Medical Progress.

RECENT PROGRESS IN SURGERY.

BY H. L. BURRELL, M.D., AND H. W. CUSHING, M.D.

(Continued from No. 20, p. 471.)

THE SURGICAL TREATMENT OF PERFORATING TYPHOID ULCER.

FINNEY²⁰ from a study of 52 cases of perforating typhoid ulcer treated by operation (six of these are now reported for the first time) finds that:

(1) Of all the so-called diagnostic signs most reliance is to be placed upon the development of a severe attack of abdominal pain coupled with nausea and vomiting, and a marked increase in the number of white blood-corpuscles.

²⁰ *Annals of Surgery*, March, 1897; *Medical News*, April 17, 1897, p. 497.

(2) The surgical is the only rational treatment of perforating typhoid ulcer.

(3) There is no contraindication to the operation, surgically speaking, save a moribund condition of the patient.

In performing this operation three things are to be done: first, to find and close the perforation; second, to empty and cleanse the peritoneal cavity; third, to effect and maintain a thorough drainage. The most satisfactory operation is performed as follows: an oblique incision six inches long is made in the right iliac region. The cecum, which is always to be recognized by its longitudinal bands, is the guide to the ileum. From it as the starting-point the coils of ileum are systematically drawn out through the abdominal wound, while one assistant wipes the intestine as it is withdrawn with gauze wrung out of a hot salt solution, and another assistant keeps it warm by means of hot towels. All of the infected intestine, even to the duodenum if necessary, should be thus treated. The whole of the peritoneal cavity should then be wiped systematically with gauze wrung out of hot salt solution, attention being directed especially to the pelvic region. Usually irrigation is unnecessary, but the intestines before they are replaced should be thoroughly irrigated and wiped dry. The first coils should be last replaced and the sutured portion left next to the abdominal wound. Bismuth gauze should be packed around this coil and introduced into the pelvis if necessary. By this means good drainage is insured and escape of feces is provided for in case of extravasation. The abdominal wound should be tightly closed except where the drains escape, and if distention follows operation the bowels should be moved early and thoroughly by calomel in broken doses, followed by salts, and, if necessary, a high turpentine and soap-suds enema. If stimulation is necessary, more reliance is to be placed on hypodermics of strychnia, enemata of several ounces of hot, black coffee, and the transfusion into the cellular tissues under the breast of a quart or more of the normal salt solution, than on any other remedies.

A METHOD OF UNITING THE DIVIDED INTESTINE.

G. Lenthal Cheate²¹ states that this operation has been planned upon experiments performed on the dead, and upon one in a living animal. He, therefore, ventures to hope that the present publication will be regarded only as a preliminary note, and not as the result of matured investigations. For, although the single operation upon a living animal was perfectly satisfactory, there are many points of importance that require full elucidation; and until further investigations into the matter are completed he does not care to say that the method here suggested is likely to emerge from a post-mortem and experimental success into a definite surgical procedure. This want of completeness, he states, will be manifest in the following description.

After the removal of the affected segment of the intestine by a section exactly transverse to the longitudinal direction of the bowel and its V-shaped piece of attached mesentery, the open ends of the gut lie requiring suture. Through all the coats forming the wall of each free end, a longitudinal incision is made, and in each case it should be situated exactly opposite that part of the bowel to which the mesentery is attached. The length of each incision

²¹ *Lancet*, May 22, 1897, p. 1403.

must vary as convenience and necessity demand, but speaking generally it should at least be equal to the diameter of the tube at the seat of resection. These incisions allow the open ends of the intestine to be spread out in the shape of a fan, and while in this state the separated serous surfaces can be exactly apposed, as it were, back to back. An assistant should now gently keep the intestinal extremities in this accurately adjusted position during their final fixation. The first suture should fix in apposition the mesenteric attachments; the two next should likewise accurately join the respective extremities of the edge of the fan-shaped expansion. The rest of the stitches may now be inserted with greater exactitude. Each must be well tightened at the first knot, all coats of both ends must be transfixed by the silk-bearing needles, and the needles and silk employed must be the finest that are compatible with safety. The ends are thus firmly joined, and all that remains to be done is to suture the longitudinal incision by any of the well-known methods which the operator may prefer. Care must be taken that its edge be well sequestered by the approximation of its serous surfaces, thereby placing the site of meeting of the four corners out of the realms of surgical importance, the site of the four corners obviously being at the centre of the longitudinal incision.

This method, besides allowing the possibility of joining intestinal tubes of the same diameter can also permit the union of the small to the large gut. Therefore, should it ever be necessary to remove the ileocecal portion in cases of malignant disease, intussusception, strangulation, and so forth, this additional attribute may prove to be of some value. The only addition necessary to accomplish the junction occurs after the small intestine has been sutured to the colon by the method described above. Then there will be on each side of the joined intestines two equal-sized superfluous flaps of the large intestine. A portion of each of these flaps can be cut away in a V-shape, so that the apex of the V is exactly in a line with the preliminary incision into the free end of the small intestine—in other words, it should be opposite the meso-colic attachment. The remaining superfluous part of these two edges can be inverted by the Lembert's suture that is employed while sewing up the resulting longitudinal incision. The result will be that the colon tapers to its union with the ileum.

THE TREATMENT OF ACUTE PERFORATING APPENDICITIS WITH DIFFUSE PERITONITIS.

Floderus²² reports in detail a case of perforating appendicitis, with general peritonitis, in a patient twenty-five years old, which was successfully operated upon by Lennander one hundred hours after the inception of the disease, and about fifty hours after perforation had occurred.

The method of operating which is employed by Lennander in cases of suppurative appendicitis is an incision parallel to and a little above Poupart's ligament. Through this incision perfect drainage can be obtained in all cases, while in some it is possible to open retroperitoneally a peri-appendicular abscess. This incision also possesses the advantage of far less predisposition to hernia, as the motor nerves are not

divided and the incision passes through the tendinous rather than the muscular portion of the abdomen.

In evacuating a peri-appendicular focus of suppuration great care should be taken not to infect the general peritoneal cavity. To this end the author covers the exposed intestines and the wall of the abscess with sterile compresses saturated in a physiological salt solution. The pus should then be absorbed by small sterile compresses as soon as it shows itself in the bottom of the wound. If the pus flows in too large a quantity to be absorbed in this manner, the patient should be turned upon the right side, the median portion of the abdomen being compressed by the assistant. The pus is then prevented from infecting the general peritoneal cavity. As soon as the pus is all out the finger is passed into the abscess cavity and the cavity carefully cleansed with compresses.

The appendix is now sought out, and removed as near to the cecal origin as possible. In these cases of suppurative appendicitis the attempt to ligate the appendix and close the stump by sutures is unnecessary. It is better, as in the case reported, to place upon it a large hemostat, which includes its mesentery, the distal portion of the appendix being removed. The hemostat is removed three or four days later. There may arise later an intestinal fistula; but this is of little consequence, as it will close of itself, and may be of value in allowing the escape of gases and the consequent renewed peristalsis, as in the case reported. As soon as the appendix has been removed and all foci of suppuration, the skin is cleansed with 1 to 1,000 sublimate solution, the tampons are removed, and the cavity carefully packed with iodoform gauze. If the cavity is not too large to be easily drained, the corners of the wound may be united by a few catgut or silkworm-gut sutures.

The washing out of the general peritoneal cavity is only employed when there has been, in spite of all precautions, an escape of a large quantity of pus into the cavity or a general peritonitis is already present. If it is necessary, he employs a normal salt solution at a temperature of about 100° F., using it until the returning water is perfectly clear. During the washing the pulse should be carefully watched, as collapse may occur due to a splanchnic reflex.

The after-treatment is of great importance, and consists in stimulation and feeding to keep up the patient's vitality during the acute stage and hasten the elimination of the poison. The method employed is digitalis for three days, followed for one week by camphor injections and the use of enemata of grape-sugar and brandy, which are the least irritating and best borne by the rectum, while they act reflexly upon the upper intestine, provoking peristaltic movements. Salt-solution transfusions are also to be employed, increasing the volume of the blood and its pressure and hindering the drying up of the tissues, which always occurs and which cannot be counteracted by the administration of fluids by the mouth.

The second indication, the removal of the poison, cannot be accomplished without the entire removal of the gangrenous appendix and the complete evacuation of the abscess cavity. A further indication is the provoking of diuresis, which the heart stimulants and transfusions tend to produce.

The peristalsis of the intestine must be restored as quickly as possible in order that it may empty itself of its septic contents. To this end he employs during the

²² Arch. für klin. Chir., 1897, Band liv, Heft 1; American Journal of Medical Sciences, June, 1897, p. 736.

operation puncture of the intestines to allow the escape of the contained gases, and later the minute and frequently repeated doses of calomel, followed by a saline laxative. The same end is achieved by enemata frequently repeated and by the passage of a rubber tube up into the rectum, allowing the escape of flatus.

So long as the peristalsis is not complete no food is allowed by the mouth, the patient being sustained by the enemata noted above. Since the pain following operation is due to a large extent to the meteorismus, it should be counteracted by enemata and the use of the tube to draw off the gases. The author strenuously advises against the use of morphine, never employing it unless the pain is unsufferable, and then only one dose of one-sixth of a grain. The morphine, by its action upon the bowel, prevents peristalsis and the discharge of the contained poisons and flatus.

The administration of morphine in the early stages of the disease only masks its symptoms and delays the diagnosis of perforation, and as each hour's delay before operation, after perforation, vitiates and lessens the patient's chance of recovery, morphine should never be employed, but the patient should be operated upon as soon as the diagnosis of perforation has been made.

Of sixty-eight cases operated upon in the clinic of Upsala there were six with diffuse and nine with fibrino-purulent peritonitis. Of the six, two only recovered, while of the nine all but one recovered, and this patient was operated upon in a moribund condition. This difference in mortality marks sharply the difference in prognosis between these two classes of critical cases.

MESENTERIC CYSTS.

Berkeley G. A. Moynihan, in an article on this subject,²² states that cysts of the mesentery are among the surgical rarities. He gives the history of the mesenteric disease, the anatomy of the mesentery, the different kinds of cysts of the mesentery, and a number of histories of cases.

In speaking of the clinical symptoms, he states that it has already been mentioned more than once that there are cysts of the mesentery, generally of lymphatic origin, discovered either during an operation for some more serious abdominal disease, or during the performance of a post-mortem examination, so small in size and so quiescent as to be of no clinical significance.

The remaining cases, so far as symptoms go, may be most usefully classified under two headings:

(1) Those in which the course is chronic, where complaint is made chiefly of an abdominal tumor.

(2) Those in which the onset of acute intestinal obstruction first draws the attention of the patient and practitioner to the abdomen.

Chronic Cases.—The cyst, whose characteristics have been enumerated, causes by its presence in the abdomen certain symptoms; the chief of these are,—

(a) Pain. Pain is more or less acute, according to the rapidity of growth of the tumor. The more rapid the growth the greater the severity of the pain and *vice versa*. The pain is local, in and around the tumor, and radiating to the flanks, groin and thighs. As a result of the pressure exerted on the intestine and the consequent partial closure of the canal, there are colicky pains, due to vermicular contraction of the hypertrophied muscular fibres as they attempt to over-

come the obstruction. There may be, but most commonly is not any, tenderness of the abdomen.

(b) Intestinal Disturbances. Constipation is the rule, but the severity and duration of it will of course largely depend on the position, duration and size of the tumors. There is sometimes vomiting, and very rarely there may be persistent and intractable diarrhea. Braquehay suggests that the compression of the vessels and nerves in the mesentery will cause a diminution in the secretion of the intestine and a consequent palsy of the muscular fibres of the gut, resulting in meteorism.

Acute Cases.—As will be readily grasped from the account given of the author's cases, described in the article, the onset of this group is strictly that of acute intestinal obstruction. There are the usual signs—vomiting, complete constipation, distention of the intestine, and the usual affections of the circulatory and respiratory systems.

There is, however, just one symptom that is worthy of mention as occurring both when acute and chronic symptoms are manifested. It is that of general wasting, which is described as occasionally being extreme. This is due presumably to interference with the lacteals of the mesentery.

Treatment.—Operative interference is necessary in both acute and chronic cases. As soon as the abdomen is opened two methods of procedure are open to the surgeon. He may—

(1) Stitch the cyst wall to the parietal peritoneum and open and drain the cavity.

(2) He may remove the cyst after aspiration, either by cutting through the opening layers of peritoneum in the pedicle, inverting the edges and applying a series of Lembert sutures, draining the peritoneum or not, according as may seem fit; or if no pedicle is found, the peritoneum may be incised over the centre of the tumor and the cyst enucleated.

SURGICAL TREATMENT OF GALL-STONES OR CHOLELITHIASIS.

A. W. Mayo Robson, in a lecture delivered at the Royal College of Surgeons of England in March, 1897,²⁴ states that after medical treatment has been fairly and fully tried in cholelithiasis, and has failed, that surgical measures should be resorted to. While cholecystotomy is generally recognized as the operation to be aimed at in the treatment of affections of the gall-bladder or bile-ducts, especially in cholelithiasis, it is often impossible to say what operation will have to be done until the abdomen is opened.

The indications for operating would seem to be as follows: (1) in frequently recurring biliary colic without jaundice, with or without enlargement of the gall-bladder; (2) in enlargement of the gall-bladder without jaundice, even if unaccompanied with great pain; (3) in persistent jaundice ushered in by pain, and where recurring pains, with or without ague-like paroxysms, render it probable that the cause is gall-stones in the common duct; (4) in empyema of the gall-bladder; (5) in peritonitis, starting in the right hypochondrium; (6) in abscess around the gall-bladder or bile-ducts, whether in the liver, or under or over it; (7) in some cases where, although gall-stones may have passed, adhesions remain and prove a source of pain and illness; (8) in fistula, mucus, muco-purulent or biliary; (9) in certain cases of chronic jaundice, with dis-

²² *Annals of Surgery*, July, 1897, p. 1.

²⁴ *Lancet*, June 19, 1897, p. 1066.

tended gall-bladder dependent on some obstruction in the common duct, although the suspicion of malignancy be entertained (in such cases the increased risk must be borne in mind, as malignant disease may be the cause of the obstruction, and operation in such cases is attended with greater danger than ordinary); (10) in phlegmonous cholecystitis and in gangrene, if the case be seen and recognized at a sufficiently early stage of the disease; (11) in gunshot injury or in stab wounds over the region of the gall-bladder; (12) in suspected rupture of the gall-bladder without external wound; (13) in some cases of chronic catarrh of gall-bladder or bile-ducts; (14) in suppurative cholangitis.

Of the operative measures undertaken for diagnosis, sounding and aspiration of the gall-bladder must be referred to. The so-called "sounding for gall-stones," either by means of a probe passed through a canula or by the fine needle of an aspirator, is both uncertain and dangerous, and may more safely be replaced by a small exploratory incision, which can be extended for treatment if required. Aspiration of a distended gall-bladder through the unopened abdomen, though apparently a simple procedure, is not unattended with danger, death having followed in more than one instance. Murphy says it is fatal in 25 per cent. It is only in very exceptional cases that it can do any good. Here, again, it is infinitely better to make a small exploratory incision than to empty the gall-bladder by the aspirator, and afterwards to explore the bile passages with the fingers. If, however, aspiration without exploration be decided upon, a small needle should be used and the cyst emptied as far as possible, in order that intra-cystic tension may not lead to extravasation through the needle puncture. Since in the majority of cases an operation for gall-stones is, in the first place, simply exploratory, the actual operation on the gall-bladder or bile-ducts being only determined by the conditions found when the abdomen is opened, it may be well for us first to consider a simple abdominal section in the gall-bladder region.

THE UNION OF RE-IMPLANTED BONE BUTTONS AFTER TREPHINING.

By a carefully conducted series of experiments, David²⁵ has proved that the buttons of bone which have been entirely removed from the skull unite when re-implanted under aseptic conditions in a manner analogous to the reparative action seen in other tissues, and that there is neither an entire new formation of bone nor any necrosis of the implanted fragment. These results were obtained by operating upon a series of dogs which were killed at regular intervals of one week, from four days to fourteen weeks after the operations had been performed. He thus secured a series of histological specimens which clearly demonstrated the fact related and that the process of repair was a normal aseptic union between the fragments of bone and the remainder of the skull, and that there was no absorption or necrosis of the fragment, but that it remained intact and became united to the other bone.

(To be continued.)

The John Englis of the Maine Steamship Company has been purchased for a hospital ship for the army.

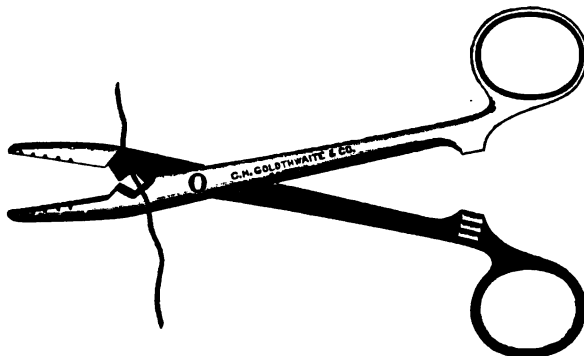
²⁵ Archiv. für klin. Chir., 1896, Band lili, Heft 4; American Journal of Medical Sciences, November, 1897, p. 609.

New Instruments.

A COMBINED NEEDLE FORCEPS AND SCISSORS.

BY JAMES BROWN THORNTON, M.D., BOSTON.

To those of us who do a good deal of minor surgical work, such as police, street and night surgery, the instrument pictured below would seem to be of great value.



With the ordinary needle-holder, in placing sutures the operator either has to depend upon the aid of an assistant in snipping the silk, or disengage his fingers, bloody and slippery, from the instrument to pick up his scissors. This causes loss of time and often much inconvenience.

In using the instrument which is the subject of this article it will be readily seen to obviate this extra work, as the operator, if he wishes, need not drop the holder until all the sutures necessary in the case are in position.

I have instructed the instrument-makers, Messrs. C. H. Goldthwaite & Co., to have this holder in stock.

A NEW INSTRUMENT FOR REMOVING COINS AND SIMILAR SHAPED FOREIGN BODIES WHEN LODGED IN THE ESOPHAGUS.

BY MARSHALL L. BROWN, M.D., BOSTON.

THIS instrument was exhibited and its effectiveness shown before the Middlesex South District Medical Society, in March, 1898.

The radical defects of the coin-catchers heretofore extant were illustrated and shown up by Dr. A. T. Cabot, recently, in the case of a child about a year old, brought into the Massachusetts General Hospital with a silver quarter of a dollar lodged in its throat. With all the instruments at command it could not be removed without performing external esophagotomy, which was skilfully and successfully done by Dr. Cabot.

The necessary requisites to render an instrument successful and effectual for the purpose for which this was invented then became apparent to me, and I constructed the instrument herein described.

It consists of a twisted stem or rod joined to a flattened handle, together about fifteen inches long, — one end of the rod is bifurcated three inches, forming a closed loop. This loop is bent upon itself into two parallel loops an inch long and about half an inch apart,

the part joining the parallel loops forming the beak of the instrument, which is placed at an angle of 45° to the plane of the posterior parts of the loops and one quarter of an inch from that plane.



The coin, or similar-shaped foreign body, is caught by the beak, deflected into the parallel loops, and upon withdrawing the instrument the coin is drawn up with it in the same position it went down, which was in the plane of least resistance, the edges of the coin being in relation with the lateral walls of the esophagus, its flat surfaces looking anteriorly and posteriorly.

In other coin-removers there are edges, angles, and corners; a coin rests in them, essentially upon one point against the rod of the instrument, and it easily slips by the edge of the coin between it and the lateral walls of the esophagus, scratching, tearing and rupturing the throat, causing abscesses. In this, the coin is caught by the loops, rests against them, and is held by two points at the ends of a segment of a circle (the edge of the coin), half an inch apart, and hence cannot slip off to injure the esophagus.

The instrument is formed of smooth rounded loops in every part in contact with the throat. For its successful use it must be introduced into the throat with the beak of the open loops pointing to the anterior wall of the esophagus, the posterior parts of the loops resting against the posterior wall. In this position it readily passes by the coin.

Reports of Societies.

THE OBSTETRICAL SOCIETY OF BOSTON.

MALCOLM STOREE, M.D., SECRETARY.

REGULAR Meeting, February 15, 1898, the President, DR. F. H. DAVENPORT, in the chair.

DR. F. H. DAVENPORT read a paper on

THE PATHOLOGY AND TREATMENT OF DYSMENORRHEA ASSOCIATED WITH ANTEFLEXION OF THE UTERUS.¹

DR. BLAKE said he had never seen any bad results follow the use of plugs. He had allowed patients to wear them for months. He had used a stem with a bulbous extremity, relying on the bulb to keep the pessary in place. He was accustomed to place the stem when the gauze packing was removed after the operation. Thorough dilatation is an important preliminary to the insertion of the stem. He thought we should not be led away from the use of methods which have proved successful in our hands because of popular clamor against them.

DR. SINCLAIR spoke of the advantages of the copper-stem pessaries formerly employed by Sir James Y. Simpson. Dr. Sinclair favored slow dilatation and the use of the stem, but used the latter only occasionally. He finds antelexion a troublesome affection to treat successfully.

DR. ENGELMAN had used in earlier times the bilateral incision with the stem. The chief advantage of the stem to his mind was the stimulation that it gave

to the tissues of the uterus. He had had good results in private practice from the use of electricity. By its use indurated tissues are absorbed, the patency of the uterine canal is maintained, and the uterine tissues are stimulated. He uses both faradism and galvanism in cases appropriate for each.

DR. SWIFT said that he gave up the use of the stem two years ago because he got good results where it was not used, and he had one case of septicemia following the use of the stem. He thinks that there is always a certain amount of endometritis in these cases, and that drainage benefits them; drainage being the chief factor in the cure.

DR. E. REYNOLDS said that the pain of antelexion is separated in character from the pain due to ovarian and tubal disease. He thinks that the point of flexion is important, because in certain forms the position of the os is a bar to pregnancy; therefore in such cases he would do discission. In most cases he now does nothing but dilating and curetting, having discarded stems and gauze packing. The essential point of treatment, especially in the married, is to restore the uterine mucous membrane to as healthy a condition as possible and to get rid of the hindrance to drainage at the internal os. Thorough dilatation is important. It may take twenty minutes to accomplish this successfully.

DR. DAVENPORT, in closing, said that it is necessary to tire out the uterine muscle. The plugs are of value in accomplishing this. When the pain ceases it is an indication that the uterus is tired out. The plug affects especially the tissues at the region of the internal os.

DR. E. REYNOLDS reported

TWO CASES ILLUSTRATING THE VALUE OF EXPLORATORY LAPAROTOMY.²

One was a case of appendicitis, and the other a case of vomiting of pregnancy.

DR. MIXTER said he preferred the abdominal to the vaginal route for operating on doubtful cases, on the principle that by the former the operator can see the contents of the pelvis. Interference with micturition he had often noted in cases of appendicitis. It was often very difficult to say in the course of an operation whether a pus-tube or an appendix was the primary cause of an abscess; sometimes it was one and at others the other. He believed most strongly in exploratory incision in cases of doubt.

DR. M. H. RICHARDSON would agree with Dr. Mixter in his last statement, but considered exploratory operations not without danger even in experienced hands. A marked fecal odor to pus, especially in young subjects, placed the origin of the pus in the appendix. He considered it very difficult to wall off an appendix through a median incision. Vaginal drainage was a good principle in pelvic abscess.

DR. E. REYNOLDS said that the question of diagnosis was of the greatest interest in these cases. He prefers the abdominal route, as a rule, especially if the pus sac is high up in the pelvis. In Case I, there were many dense adhesions about the cecum that made it impossible to get at the disease from above.

DR. G. H. WASHBURN reported

TWO CASES OF CÆSAREAN SECTION.³

DR. E. REYNOLDS said that Dr. Washburn's cases showed that patients can be made clean in any sur-

¹ See page 514 of the Journal.

² See page 517 of the Journal.

³ See page 516 of the Journal.

roundings. It is important to go slowly in extracting the child and placenta, and the place to hurry is in the suturing. He had himself had five cases, and had seen nine altogether. The incision in the uterus should be made large enough, and it was important not to tear the uterine muscle. The broad ligaments should be held by the hands of the assistant and the india-rubber tubing is superfluous. He considers that there is no advantage in leaving a piece of gauze projecting from the uterine cavity into the vagina for drainage. If the broad ligaments are properly held by the assistant, it makes no difference whether the placenta is situated under the incision in the uterus or not.

DR. WASHBURN, in closing, said that the time spent in cleaning out the uterus was well spent, and spoke of the advantages of employing absorbable sutures in the uterine walls.

Recent Literature.

Constipation in Adults and Children. With special Reference to Habitual Constipation and its Most Successful Treatment by the Mechanical Methods. By H. ILLOWAY, M.D., New York: The Macmillan Co. 1897.

This octavo volume of 500 pages is divided into two parts: Part I treats especially of Adults; Part II treats especially of Infants and Children. Part I is again sub-divided into Section 1, the chapters of which deal with the anatomy, physiology, pathology, etiology and symptomatology of the bowel and its disorders; and Section 2, whose chapters are devoted entirely to the question of treatment. With Part II a somewhat similar order is followed. In Section 2 of the first part no less than 135 pages are devoted to the treatment of constipation due to atony of the intestine; hygienic rules, dietetic regulations, exercise, massage, movement methods, hydrotherapy, electricity, drugs, are all carefully discussed.

The scheme of the book is thoroughly and painstakingly carried out, and it will be found a useful addition to the physician's library.

The book and its title are, however, rather curious comments upon the tendency to specialization. Constipation in itself is really a symptom rather than a disease. But one is inclined to suggest the question, Are we to have constipation specialists, separate hospital clinics for constipation, and an American constipation society or association?

The Health Resorts of Europe. A Medical Guide to the Mineral Springs, Climatic, Mountain and Seaside Health Resorts, Milk, Whey, Grape, Earth, Mud, Sand and Air Cures of Europe. By THOMAS LINN, M.D. Fifth edition. London: Henry Kimpton.

This handy medical guide to the health resorts of Europe is compact enough to be carried in the pocket and yet contains much useful information in a condensed form. Advice, where given, as in the introductory pages, is sensible, and the statements seem to be trustworthy. It is a useful little book both for the medical adviser and for the traveller. The number of editions it has reached emphasizes the fact that it is appreciated.

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THE RECENT MOVEMENT AGAINST ABUSE OF MEDICAL CHARITY IN NEW YORK.

At the National Conference of Charities, recently in session in New York, Dr. Frederick Holme Wiggin, of that city, presented to the Conference "An Historical Sketch of the Recent Movement to Restrict the Abuse of Medical Charity in New York," an outline of which will doubtless interest many of our readers.

The movement had been inaugurated about eighteen months ago by the efforts of Dr. Stephen Smith, recently president of the Department of Charities, and Dr. Landon Carter Gray, then president of the Medical Society of the County of New York, who showed that the ratio of those applying for medical aid had risen from 16 per cent. in 1860, to about 49 per cent. in 1895. A committee of the County Medical Society, consisting of gentlemen representative not only of the general medical profession, but of the larger teaching faculties in the city, were charged with the duty of investigating the question of the abuse, and, if possible, suggesting the remedy. They found no difficulty in proving the existence of a serious abuse, and consequently their efforts were chiefly directed towards seeking out the remedy. It did not take long to reach the conclusion that the evil was largely the result of a lack of proper methods of investigating the financial condition of those applying for medical relief, and that the Charity Organization Society considered it perfectly feasible to systematically investigate all applicants. The cost of such investigation, it was estimated, would be about twenty-five thousand dollars the first year and about five thousand dollars each subsequent year.

In the opinion of the committee another important factor in the production of the dispensary abuse was the system of charging small fees for the medicines and apparatus, thus leading many persons to feel that they were paying their way. As a result of this pre-

liminary study of the question, the committee felt convinced that the evil could be restricted by attention to these points, and also by making it a misdemeanor, punishable by a moderate fine, for a person to obtain, by reason of false representation as to financial condition, free medical or surgical relief at a dispensary. An effort was then made, by means of a circular letter, to secure the co-operation of the managers of the dispensaries; but although more or less definite replies were received from 76 dispensaries, it soon became apparent that it would be impossible to get the managers of all the dispensaries in this city to voluntarily agree to any general plan. The attitude of these managers was clearly presented in the report made to the Legislature last January by the State Board of Charities, which says of them: They "apparently are not, and have never been in a temper to come to some mutual understanding whereby better conditions shall prevail. In a large degree and for various reasons, they have become competitors in business to such an extent that it is probable that nearly half of the inhabitants of New York are now receiving practically free medical treatment."

The original committee was soon reinforced by representatives from a similar committee appointed by the New York County Medical Association. As a new organization, known as the New York Society for the Advancement of the Practice of Medicine, had already introduced into the legislature a bill intending to rectify some of these abuses of medical charity, and as this bill contained a number of objectionable features, its proposers were consulted, and persuaded to give their consent to the substitution of another bill that had been prepared. The main features of the latter, or the first "dispensary bill" were: (1) forbidding the establishment of a dispensary in a drug-store or tenement-house; (2) requiring all dispensaries to be duly incorporated and to be licensed by the State Board of Charities; (3) providing that persons shall not obtain relief from dispensaries by false representations and that a violation of this act shall be a misdemeanor, and (4) empowering the State Board of Charities to make rules and regulations and to annul or suspend incorporations and to revoke licenses. The bill having received the endorsement of the State Board of Charities, it was passed unanimously by both houses of the Legislature, but did not become a law owing to the failure of the executive to approve it.

Between this time and the opening of the legislative session of 1896, the subject was freely discussed, not only in the medical societies, but by both the medical and lay press, and the following medical societies endorsed the plan of appealing to the Legislature to limit the abuse of medical charity: the New York State Medical Association, the Medical Society of the County of New York, the New York County Medical Association, the New York Medical League, the New York Society for the Advancement of the Practice of Medicine, the Medical Society of the

County of Kings, the Kings County Medical Association, the Brooklyn Medical Society, the Brooklyn Medical Association and the Long Island Medical Society. Representatives of these societies formed a joint committee which, after much careful investigation, prepared the outline of another bill, which was milder in character, and which seemed to eliminate the features which had been considered objectionable in the previous bill. Before its representation to the Legislature, this outline was submitted to the revision committee appointed by the Governor for the purpose of revising or preparing bills, so that they shall be constitutional and shall not conflict with existing laws.

The essential points of difference between the second bill and this one were: (1) in the new bill the definition of a dispensary was limited to such institutions as derived their income, wholly or in part, from trust funds, public moneys or sources other than the individuals constituting the dispensary and the persons actually engaged in the distribution of its charities; (2) in the new bill the State Board of Charities was given control over dispensaries by empowering it to grant licenses to such institutions as in their judgment would be for the public benefit; (3) in the new bill, the board was given the power to revoke licenses for cause, after a public hearing, instead of, as in the previous bill, the power to annul the act of incorporation.

It seemed to the framers of the measure that if the existing abuse of medical charity was to be controlled the first requisite was an impartial body, which should control and make rules and regulations for the government of all institutions seeking to relieve the sick poor. Such a body is provided for by the Legislature, under the New York Constitution, in the State Board of Charities, and its powers are such that they would require to be but very slightly extended to allow this board to assume control and supervision of the dispensaries of the State by issuing and revoking licenses.

This revised dispensary bill was very generally and favorably commented upon by the daily press at the time of its introduction into the Legislature in the early part of the session. At first, the bill met with scarcely any opposition in the Legislature, but when it was favorably reported by the Committee on Public Health of the Senate, to whom it had been referred, such vigorous protests were received by the chairman of that committee, that provision was made for a joint hearing of the friends and opponents of the measure, before the Senate and Assembly Committee on Public Health. After full arguments on both sides, the Senate Committee reported the bill favorably to the Senate, which passed it with only two negative votes; but the Public Health Committee of the Assembly failed to report the measure to the Assembly, although vigorous efforts were made by its friends to secure a favorable report. The measure was, therefore, smothered in committee, and failed to become a law.

THE SIGNIFICANCE OF INFLAMMATION.

THE writers on pathology early in this century regarded inflammation as a phenomenon of disturbed action of the small blood-vessels of a part. Some, as John Hunter and Thomson, saw over-action, hence distention and engorgement; others, as Vacca and Wilson Phillip, maintained diminution of action and debility of the vessels; the capillaries lose their power and distention, stasis and exudation follow.¹ The agency of the nervous system is prominent, and to this is referable the action of the arteries of the part, or of distant parts.

Without stopping to consider the considerable element of truth which there is in this theory (for even with their imperfect microscopes those old pathologists were good observers), and only noting that John Hunter, whose views long prevailed, regarded inflammation as "a salutary operation," destined to restore the parts *ad integrum*, we note that the first real advance on the older views was made by Virchow, whose interpretation of inflammation is now known as the *hypernutrition theory*. In inflammation, under a morbid stimulus we have simply exaggeration of phenomena which occur in ordinary nutrition, namely, vascular exudative and tissue changes brought about by a combination of the three forms of irritation—functional, nutritive and formative. Inflammation begins the moment that increased absorption of matters into the tissue takes place, and the further transformation of these matters commences. As for the exudation, Virchow did not place so much importance on this as an essential element of inflammation as did the French and Vienna schools. He regarded the so-called inflammatory exudate as a product, chiefly, of the heightened activity of the elements of the tissues under inflammation.² Thus, pus corpuscles were looked upon as a development from the tissue cells; epithelial, mucous, muscle-cells, connective-tissue corpuscles, etc., though he confesses that they look marvellously like and are indistinguishable from leucocytes. The exudate may be absorbed and healthy resolution result, or be organized (inflammatory bands, adhesions, various connective-tissue growths), or degenerate, causing the fatty, caseous, or other transformations witnessed in severe inflammations.

The above view of inflammation is natural, as coming from one disposed to look upon this morbid process in its relation to local groups of cells whose activity is augmented, perverted or diminished by a noxa or irritant. At the time these views were first propounded, bacteriology was in its infancy, and the microscopical anatomy of an inflamed part had not been sufficiently studied in the living animal.

Cohnheim first distinctly stated the rôle of the leucocytes in inflammation. He attributed to these the principal part in the new formations which attend inflammations. This view has been much modified since Ziegler and others have shown the real participa-

tion of the fixed cells in hyperplasias and productive inflammations, and since the true function of the leucocytes as "indifferent cells" devouring and removing refuse matters, and their phagocytic properties have been demonstrated—thanks to the progress of bacteriology, improved microscopic technique, and more careful observation. Cohnheim's essential contribution was the necessary participation of the smaller blood-vessels—the capillaries and veins in the inflammatory act; the starting-point and the essential factor of every inflammation is a damage done to the vessel walls of the part whereby they become more porous and undergo changes of a molecular character permitting transudation of corpuscles and plasma into the tissues. This view still dominates pathological teaching. It is a wide remove from Virchow's doctrine that inflammation begins in an alteration of the nutrition of the cells of the part.

The interpretation of Burdon Sanderson³ recognizes the importance of the exudation as an essential part of every phlegmasia, while emphasizing the local damage of tissue as well as of the blood-vessels. There is a proliferation of the fixed cells (as Virchow taught), but this is not so early nor so prominent an event as the migration of leucocytes (the latter being, Hallopeau thinks, an essential feature of every true inflammation).⁴ The exudation is due to a leakage from the blood-vessels by an alteration of their walls (this is, as above, said also to be Cohnheim's statement). There is active determination of blood and there is stasis. It is stasis that kills; stasis is the beginning of necrosis. What most impresses Sanderson is not hypernutrition but injury and damage. Inflammation (as inflammation) is in no sense conservative, but its only direct effect is necrosis due to arrest of the circulation. Sanderson made numerous interesting experiments in inducing inflammation by heat and cold, etc., by simply tying the nutrient artery of a rabbit's ear and keeping the part deprived of blood for twenty-four hours and then removing the ligature, when violent inflammation with necrosis resulted. In his estimation microbes are not so much "mischief producers" as "mischief spreaders." Since the publication of these lectures, much more importance has been assigned to microbes as true causes of inflammation, and some have denied that there are any other phlogistic agents. The present belief is that microbes are not the exclusive causes, but that there are "simple" inflammations (due to traumatism and chemical poisons) as well as microbic or infective inflammations.

The contribution which Landerer has made to the subject is of great moment. In answer to the questions, Why the increased flow of blood to the damaged part? Why the stasis which is the "first step toward death"? Why the exudation? he replies that it is not altogether because the blood-vessels are damaged, though they participate in the damage, nor because the part attracts more blood under a morbid stimulus, but because the vital properties of the tissue are in-

¹ Sir Astley Cooper's Surgical Dictionary, Art. *Inflammation*.
² Cellular Pathology, American edition, p. 429.

³ Lumleian Lectures, Lancet, 1882, 1.

⁴ Hallopeau, Pathologie Générale, Paris, 1891, p. 329.

jured so that they no longer, by their elasticity and tonicity, effectually oppose the dilatation of the blood-vessels and the consequent engorgement. He points out the intimate connection between the capillaries and the tissues; the former are to be regarded as "vascular spaces in the tissues lined with endothelium, and not as separate tubes sufficiently strong to support all the pressure that may be brought to bear upon them from within." The irritant exerts an influence upon the tissues by virtue of which they become relaxed; the diminished elasticity of the tissues acts on the momentum transmitted to the blood much in the same way as an atheromatous artery. The pressure cannot be returned to the blood column, but is expended in stretching the tissues. Thus the amount of blood increases, but the power to move it diminishes; there is leakage, owing to diminution of external pressure. This view undoubtedly enlarges and explains that of Sanderson; there is damage to a part, then diminished elasticity and tonicity of the tissue-elements, then lessened resistance and augmented flow, followed by distention, stasis and exudation. Thus it will be seen that inflammation constitutes the entire series of complex reactions in a part following grave damage.

Is there anything conservative in these reactions? The damage may destroy, but the reactions, not the damage, constitute the inflammation. From this point of view, a conservative end may be discerned. It is well stated by Dr. J. C. Warren in his excellent "Surgical Pathology":

A certain flooding of the tissues is produced by the inflammatory process, and all injurious substances are thereby swept away, whether chemical poisons, fragments of dead or injured tissue or bacteria, and at the same time new materials are conveyed to facilitate the process of repair. The process peculiar to the leucocytes or phagocytes when performing this duty which enable them to act as scavengers . . . and the antiseptic properties of blood serum favor this view. . . . When after an excessive inflammatory reaction great swelling is followed by supuration, it is seen that the old idea of a "peccant humor" rests on a scientific basis, and in the discharged contents of the abscess are found the remnants of the injurious substances which gave rise to the inflammation.⁵

It might be added that we see this same conservative end in those chronic inflammations where a hydatid cyst, tubercle, gummatous tumors, etc., are walled off and rendered innocuous by a firm capsular investment of connective tissue.

MEDICAL NOTES.

DR. WILLIAM OSLER.—Dr. William Osler, of Baltimore, has been selected for the distinction of the Fellowship of the Royal Society of England. He is already a Fellow of the Royal College of Physicians of London.

BOSTON AND NEW ENGLAND.

ACUTE INFECTIOUS DISEASES IN BOSTON.—During the week ending at noon, June 1, 1898, there

⁵ Warren's Surgical Pathology, p. 114.

were reported to the Board of Health, of Boston, the following numbers of cases of acute infectious disease: diphtheria 16, scarlet fever 11, measles 68, typhoid fever 5.

PRESIDENT OF THE NEW HAMPSHIRE MEDICAL SOCIETY.—At the recent meeting of the New Hampshire Medical Society at Concord, N. H., George L. Saltmarsh, M.D., of Lakeport, was elected President of the Society.

AN INFIRMARY FOR HARVARD.—The committee having in charge the project of an infirmary for Harvard University has secured as a site a lot of land between the Cambridge Hospital and the Old Ladies' Home, having a frontage of one hundred feet on Mt. Auburn St. and extending back to the Charles River Parkway. The members of the committee now have money enough on hand to pay for the site, with a small surplus. The plans proposed, which were drawn by Edmund W. Kingsbury, provide for a building of brick, with stone trimmings, two and a half stories in height, with a frontage of 46 feet and a length of about 130 feet. In addition to the single rooms for students, there will be a library and reading-room for convalescents, rooms for the parents whose sons are patients in the infirmary, the necessary bathrooms and laboratories, and a diet kitchen in addition to the kitchen of the infirmary proper. The location of the building is such as to give an outlook over the new parks on both sides of Charles River and Soldiers Field, and there will be an exposure to the sun on three sides for the greater part of the day. The project is largely a philanthropic one, for, while those students who are able to pay will be charged, the infirmary will be free to the poorer students. The students coming to the infirmary will be entitled to all the privileges of a regular hospital, such as being attended by any physician the patient desires, etc., except in the cases where the expense is borne by the college.

NEW YORK.

NO INDICTMENT FOUND AGAINST DR. CLEVELAND.—It is gratifying to announce that Dr. Turnbull W. Cleveland, a highly esteemed member of the profession and a Fellow of the New York Academy of Medicine, who has for some months been held in bail on a criminal charge, has been honorably discharged by the courts. The indictment found March 16th, charging Dr. Cleveland with criminal negligence, resulting in the death of the infant daughter of James L. Carhart, a theatrical manager, was on May 23d dismissed by Judge Cowing in Part 2 of General Sessions. In doing so the judge stated that no cause of death was shown to the Grand Jury, and that, furthermore, the uncontradicted statement of the defendant's attorneys that two members of the Grand Jury found the indictment without hearing the evidence was sufficient of itself to kill the indictment. Before bringing the criminal charge against Dr. Cleveland, the parents had been unsuccessful in a suit for civil damages.

OPENING OF THE RECREATION PIERS.—The recreation piers at the foot of East Third Street and East Twenty-fourth Street were opened to the public for the season on the afternoon of May 28th, and in the evening band concerts were provided at both piers.

THE NATIONAL CONFERENCE OF CHARITIES.—The twenty-fifth anniversary of the National Conference of Charities and Correction, now a large and powerful body, with delegates from every State in the Union as well as Canada and Mexico, was celebrated at Carnegie Music Hall on May 18th. Mr. Joseph H. Choate presided, and among the speakers were Archbishop Corrigan, Bishop Potter and President Seth Low, of Columbia University.

The business sessions of the Conference, which lasted a week, were held at Association Hall, and on Sunday evening, May 22d, the conference sermon was preached at Grace Church by the Rev. Dr. Huntington.

At the meeting of May 19th Mayor Quincy, of Boston, spoke of the thirteen boards of public charities in Boston, comprising eighty-seven men and women who gave their services to the city without pay. Boards of charities, he said, had the advantage over single-headed commissions of permitting the utilization of women's services. This was a distinct gain, which could not be had with a paid commission. They also roused civic pride, because their numbers kept the public charity department in touch with the citizens.

Among those who took part in the discussion on the abuse of medical charities were Drs. Stephen Smith, Austin Flint, D. B. St. John Roosa, Wickes Washburn, and Frederick Holme Wiggin. Dr. Wiggin's paper was entitled "An Historical Sketch of the Recent Movement to Restrict the Abuse of Medical Charity in New York," and is dealt with elsewhere.

Mr. James G. Cannon, the President of the Good Samaritan Dispensary, expressed the opinion that the proper organization and co-operation of all the dispensaries would do more to decrease the abuse of medical charity than any legislation.

The following officers were elected for the ensuing year: President, Charles R. Henderson, of the University of Chicago; First Vice-President, Seth Low, New York; Second Vice-President, Laban Pratt, Boston; Third Vice-President, W. J. Breed, Cincinnati; General Secretary, Hastings H. Hart, Chicago; Treasurer, Levi L. Barbour, Detroit.

It was also voted to appoint a committee of seven to whom will be intrusted the duty of endeavoring, with the aid of the American Bar Association, to bring about an equalization of laws with reference to keeping and caring for dependents in the different States of the Union.

TAMMANY AND BELLEVUE.—It is announced that John W. Keller, the Tammany Commissioner of Charities, is about to make a complete reorganization of the attending and consulting physicians and surgeons of Bellevue Hospital, and as a result of this it is to be inferred that the visiting staffs of all the other hospi-

tals belonging to the city will also be reorganized. For a considerable number of years past, three-fourths of the appointments at Bellevue have been made from the faculties of Bellevue College, the University Medical School and the College of Physicians and Surgeons, now the medical department of Columbia; the other fourth of the staff being taken from the members of the profession not connected with these colleges. During the administration of Mayor Strong, it will be remembered, the attending physicians and surgeons of all the city hospitals except Bellevue were summarily dismissed by the Commissioners of Charities then in office, and the nomination of their successors was placed in the hands of the Medical Board of Bellevue Hospital; each of its four divisions being assigned an equal number of appointments. In the reorganization of the hospital staffs now contemplated, the idea seems to be to give the profession outside the colleges mentioned a larger share of the appointments, though the precise manner in which the incumbents are to be selected has not as yet been made public; but if the tenure of these hospital positions is not made more fixed than it has been of late, it will soon be difficult to get the best men in the profession to accept them.

DEATH OF DR. ANDREW MANNING.—Dr. Andrew Manning, who had been for a number of years city physician of Plainfield, N. J., died suddenly on May 19th. He was born in Plainfield, January 6, 1861, and was graduated from the College of Physicians and Surgeons, New York. Afterwards he was house-surgeon at Charity Hospital, Blackwell's Island.

Miscellany.

RÖNTGEN X-RAYS AND SIGNS OF DEATH.

News comes from Paris of a fresh medical use of the discovery of Röntgen, namely, to test the reality or otherwise of apparent death. The event that gave rise to the experiment was the occurrence of an alleged case of premature burial at the Montmartre Cemetery in Paris. A man who had been found inanimate on the floor of his room, after an official inquiry was taken away and buried in the ordinary manner. Two hours later, however, his body was exhumed, because of a rumor that he had simply fallen into a cataleptic condition. Various skilled witnesses agreed that the body did not present all the signs of death, and decomposition appears to have been delayed. Seven days after the apparent death, M. De Bourgade took a Röntgen-ray photograph of the chest, and as the result of that examination, came to the conclusion that the man was undoubtedly dead. The principles on which he founded his reasoning were plain. An opaque object with oscillating edges, if interposed between an x-ray tube and a photographic plate, will leave on the latter a shadow-print with light-toned margins. Hence, in a radiograph of a living heart the contour is light and indistinct, and merges gradually into the dark main mass of shadow. In a dead body, on the other hand, the edge of solid thoracic organs, as the heart and diaphragm, is sharp,

and lacks the dim borderland that marks pulsating movement. The pseudo-cataleptic individual of Montmartre, when radiographed by M. Bourgade, showed a heart and diaphragm deeply and uniformly depicted, hence he had no difficulty in determining that they belonged to a corpse.

So far as one can determine from mere description, a substantial contribution appears to have been made to medical science in a highly practical direction, for the subject of premature burial has too long been a bogey in the hands of unscientific and alarmist writers. — *Medical Press and Circular*.

NON-MEDICINAL METHODS OF TREATMENT.

In his opening address before the last Congress for Internal Medicine, Professor von Leyden gave expression to the following sensible views:

"To-day we are conscious at the bedside that we have not simply to treat the disease, but chief of all the patient himself, and that he is indifferent to nothing, not even the slightest thing; nothing is adjusted at the bedside in the right way of itself; the physician has to see to everything, and not infrequently the so-called simple remedies are the ones which possess the power to hold together the delicate thread of life and again to fortify it. Medicine of to-day no longer rests upon a fixed system and no longer draws from a single source. Its remedies and methods have been multiplied and extended to an astonishing degree. What formerly appeared of secondary importance has now risen to a position of prominence. Numerous therapeutic measures arise to demand recognition. Our therapy is no longer exclusively based upon medications and prescriptions. We know that the task of the physician is not finished when he has written his prescription *lege artis*. He must make a more critical and thorough investigation of his patient's condition. We are convinced that many patients recover without medicine, and that many diseases are healed by other means." — *Medical Record*.

Correspondence.

[Special Correspondence.]

VENEREAL DISEASES IN PARIS.

(Concluded from No. 21, p. 507.)

FOR extensive vegetations about the vulva and anus, I have seen used, first, a swabbing with cotton dipped in chromic acid, then a removal of the excess of acid with water, and finally the use of the stick of nitrate of silver. An immediate red deposit of the chromate of silver is produced, and there is a liberation of free nitric acid. Cauterization produced in this way is rapid and effective. Besnier introduced some years ago a method of applying to scrofulous ulcers, first the nitrate of silver and then a rod of zinc, such as one would use in an electric battery. After the first black deposit of silver, and the first destruction caused by the free, active nitrogen, the zinc allies itself with much of the oxygen of the NO_2 combination, thus setting free more nitrogen and continuing and intensifying the work. Both these methods are useful, but the latter is more superficial and less thoroughly destructive, and thus not so serviceable in the luxurious vegetations of neglected venereal disease.

A clever method of distinguishing an indefinite and faintly marked syphilitic roseola was shown me by Professor Jullien. It consists simply in viewing the skin of the patient through blue glass. Jullien simply puts on an ordinary pair of blue goggles and inspects from a short distance. It is wonderful how clearly and distinctly a previously indiscernible eruption stands forth. Professor Thibierge showed me, in the wards of *La Pitié*, an elaboration of the same thing. He had a rectangular sheet of blue glass, framed as a boy's slate would be, and from one side of the frame was a handle like that of a hand mirror. This could be held at any desirable distance from the observer's eye or from the patient. This method of observation is extremely valuable, both as a matter of early diagnosis and early institution of treatment, and of the careful noting of the evolution and involution of the macules in patients constantly under supervision. I have, also, no doubt that under its general use many roseolae would be brought to light which would otherwise have escaped entirely unnoticed.

In the St. Louis, the ordinary, routine treatment for syphilis is by the proto-iodide of mercury, and a solution of chlorate of potash for the mouth. Mixed treatment is used, of course, when necessary. When, however, the type of disease is a severe one, the patient is sent to the hospital wards for calomel injection. In the St. Lazare, injection is practically used to the exclusion of all other methods of administration. It is worthy of note that in Morrow's latest "System of Dermatology and Syphilography," published only a year or two ago, and extremely up to date, Fournier is quoted as opposed to intramuscular injection, and as saying that one of the reasons why patients flocked to the St. Louis from the other hospitals was because of the extreme dread of such a painful method of treatment. To-day, however, the injection of calomel is given constantly in his wards, and only last Tuesday I heard him say, when presenting a case of malignant syphilis, that such a patient would be injured by waiting for tardy treatment by the digestive canal; that we should strike a severe and decisive blow, and that this could only be done by calomel injection. Most of the specialists whom I know here use injections constantly in their private practice, and for all cases, whether malignant or not. It is extremely simple to give a patient one treatment a week, and leave him free during the rest of the time to occupy himself with his private affairs. It is also more efficacious. I have seen nothing used here but the insoluble salts, calomel preferably. In a few cases I have noticed the gray oil exhibited, but never a soluble preparation.

In treating syphilis by the injection of the insoluble mercurial preparations, the following precautions should be observed:

(1) Examine the patient's urine. Never take the chance of aggravating an already existing nephritis. Thus, when albumin is found, this treatment is contraindicated.

(2) Sterilize instruments by boiling. The skin of the patient should be cleansed by soap and water followed by a solution of corrosive sublimate.

(3) Shake the preparation well, so that the drug may be thoroughly in suspension.

(4) Select the region which is to be injected. The favorite part is the buttock, and the point of election is at the intersection of two lines, one running horizontally from the great trochanter, and the other vertically at the junction of the middle and inner third of either buttock. At this point there are no nerves or vessels. Practically, however, this rule need not be absolutely observed, the great desideratum being to insert the needle at a point higher than the tuberosity of the ischium, so that after-pressure may be avoided. The custom is to inject the buttocks alternately.

(5) Be sure that none of your preparation is on the outer surface of the needle, because if you fail in this particular you are liable to get great local irritation from the deposit of particles along the track of the instrument. The proper method of procedure is to plunge your steril-

ized needle into the tissues, then to fill your syringe, attach it, make your injection and withdraw quickly.

(6) Plunge deeply. The less superficially you deposit your medicament the less liable are you to pain and abscess.

After long-continued observation in the hospital clinics, and after visiting most of the public places of amusement, I have been forced to the opinion that the regulation and inscription of prostitutes in Paris is not a success from a health standpoint. Only a few weeks ago, one of the gentlemen in charge of the St. Louis clinic regretted that he could not show a greater variety of dermatoses, because the large number of syphilitic cases had crowded out the others. Dr. O. Commenge, *chef* of the dispensary of *salubrité*, has just published a more or less interesting work on clandestine prostitution at Paris. He tells us that from 1878 to 1887 there were 27,007 unregistered prostitutes sent to the dispensary for examination. Of these, 8,476 had venereal disease of some kind, 4,428 suffering from syphilis. This gives no real idea of the number of clandestine prostitutes in the city, because the agents of public morals only interfere with a girl after absolute and repeated proof of her guilt. Those who are found by the medical examiner to be diseased are sent to the St. Lazare. The others are held, awaiting word from their parents, or are sent to some charitable institution, or disposed of in whatever way may seem best suited to the individual case, some of them being inscribed and allowed to pursue their avocation under police regulation. The regulation, however, is somewhat irksome. When a girl applies for inscription, she is given a card notifying her to apply for examination every fifteen days, and giving her advice as to her dress, as to the hours during which she may accost men, and the manner of accosting. She is advised to make herself as little conspicuous as possible. She is absolutely interdicted certain of the principal streets, and she is forbidden to speak to a man accompanied by a woman or a child. All these restrictions are of little use when one considers the vast horde of irregulars infesting the streets, the hotels, the theatres, the restaurants and the cafés.

I cannot believe in this law of regulation, because, in the first place, it recognizes, legalizes and induces an undue familiarity with prostitution in a manner which cannot but be degrading to a community. We have prostitutes in Boston, but we do not make them the subject of illustration in our comic papers. Neither do we exploit them on our local stage, nor chronicle their appearance at the race-course. All this condonement and publicity tends to swell the ranks of the *demoiselles du pavé*.

Secondly, it is unjust. It legalizes the act of illicit sexual intercourse, but condemns and imprisons for disease, the natural consequence of that act. Furthermore, with two people equally attainted, and equally a menace to the public health, it seizes and punishes only one. Mauriac says in this connection: "We hear always of the *prostituée*; and the *prostitute*, you do not seem even to suspect their existence! I think it is monstrous that any one should say that every woman who makes commerce of her body should be submitted to certain exactions, to certain methods permitting the quality of the merchandise to be controlled, and protecting the consumer. But, this consumer is able to protect himself in a most efficacious manner, that is to say, by not consuming. And then, why not submit the consumer to certain exactions, to certain measures tending to guarantee the merchandise? Will you do it? Never."

Thirdly, the law is inefficacious. It does not prevent disease. It begets a false security which tends to greater danger. Without considering the great number of the unregistered, the regulars themselves cannot be guaranteed. The government, every fortnight, certifies to the purity of a vendible article which may be a source of danger to the purchaser of the very next day. A law of examination will never be absolutely effective unless the man is subject to the same exactions as the woman. Recognizing this fact, one ingenious Frenchman has gravely suggested that there be an experienced matron (presumably a trained

nurse) in each house of prostitution, and that she shall make a careful examination of all men desiring to purchase the favors of the damsels under her charge. This is regulation with a vengeance.

While I believe that the recognition and licensing of prostitution does not tend to the common good, I am well satisfied that due regard for the public health demands hospital treatment for syphilitics during certain active stages of the disease, because hospital treatment necessarily means isolation. I have no doubt that there is more than one young prostitute walking the streets of Boston to-day, who is a danger to the community, and who would gladly seek voluntary retirement in hospital, were she given the chance. It may be said that she does not deserve care, and that the young man who invests his earnings in buying the embraces of such a woman merits any fate which may come to him. Perhaps this is all true, but does the innocent girl whom he subsequently marries deserve whatever fate may come to her, and do the children born of such a marriage deserve all the sufferings and miseries of hereditary syphilis? Does this young man's fellow-workman who drinks from the same cup, or perhaps smokes the same pipe, deserve to contract a loathsome disease, and in turn to infect his own family? A few beds in one of our large hospitals, devoted to the reception of syphilitic patients of either sex, would, I am sure, be of the greatest public service, without in any way tending to degrade or demoralize the community.

Yours truly, WM. G. MACDONALD, M.D.

RECORD OF MORTALITY

FOR THE WEEK ENDING SATURDAY, MAY 21, 1898.

CITIES	Estimated population.	Reported deaths in each.	Deaths under five years.	Percentage of deaths from					
				Infectious diseases.	Acute lung diseases.	Whooping-cough.	Diphtheria and croup.	Scarlet fever.	
New York . . .	3,438,899	1170	431	10.80	18.27	1.76	3.33	2.07	
Chicago . . .	1,619,226	—	—	—	—	—	—	—	
Philadelphia . . .	1,214,256	383	121	10.14	13.78	52	5.46	.78	
St. Louis . . .	570,000	189	—	2.75	27.50	—	2.20	—	
Baltimore . . .	550,000	185	56	4.80	12.00	—	1.20	.60	
Boston . . .	517,732	217	47	5.06	14.28	.46	.92	—	
Cincinnati . . .	405,000	115	—	7.74	8.69	2.61	1.72	—	
Cleveland . . .	350,000	—	—	—	—	—	—	—	
Pittsburg . . .	285,000	—	—	—	—	—	—	—	
Washington . . .	277,000	90	21	12.22	23.10	1.11	—	1.11	
Milwaukee . . .	275,000	—	—	—	—	—	—	—	
Providence . . .	150,000	54	14	9.25	12.96	—	1.86	—	
Worcester . . .	105,050	35	12	11.44	14.30	—	—	—	
Fall River . . .	95,919	28	8	14.28	14.28	—	—	—	
Nashville . . .	87,754	33	7	—	15.15	—	—	—	
Lowell . . .	87,193	32	13	3.13	18.78	—	3.13	—	
Cambridge . . .	86,812	33	6	15.15	18.18	—	3.03	—	
Lynn . . .	65,320	16	5	18.75	31.25	12.50	—	—	
Charleston . . .	65,165	—	—	—	—	—	—	—	
New Bedford . . .	62,416	22	6	—	8.30	—	—	—	
Somerville . . .	57,977	15	1	20.00	13.33	—	6.68	—	
Lawrence . . .	55,510	15	7	6.66	50.00	—	—	—	
Springfield . . .	54,790	12	3	16.66	—	—	—	—	
Holyoke . . .	42,364	4	1	—	—	—	—	—	
Salem . . .	36,062	14	2	14.28	35.70	—	—	—	
Brockton . . .	35,853	—	—	—	—	—	—	—	
Malden . . .	32,894	4	2	25.00	50.00	—	—	—	
Chelsea . . .	32,716	12	4	8.33	16.66	—	16.66	—	
Haverhill . . .	31,406	14	4	14.28	—	—	—	—	
Gloucester . . .	29,775	—	—	—	—	—	—	—	
Newton . . .	26,990	9	2	—	22.22	—	—	—	
Fitchburg . . .	26,392	6	2	33.33	—	16.66	—	—	
Taunton . . .	27,812	11	5	—	18.18	—	—	—	
Quincy . . .	22,562	5	3	—	20.00	—	—	—	
Pittsfield . . .	21,991	—	—	—	—	—	—	—	
Waltham . . .	21,812	5	1	—	—	—	—	—	
Everett . . .	21,575	4	3	—	—	—	—	—	
North Adams . . .	19,136	11	3	9.09	27.27	—	—	—	
Northampton . . .	17,418	—	—	—	—	—	—	—	
Chicopee . . .	17,368	10	2	—	10.00	—	—	—	
Brookline . . .	16,161	—	—	—	—	—	—	—	
Medford . . .	15,832	3	2	—	—	—	—	—	

Deaths reported 2,758; under five years of age 796; principal infectious diseases (small-pox, measles, diphtheria and croup, cerebro-spinal meningitis, diarrheal diseases, whooping-cough,

erysipelas and fevers) 240, acute lung diseases 436, consumption 316, diphtheria and croup 78, whooping-cough 30, diarrheal diseases 29, scarlet fever 28, cerebro-spinal meningitis 26, typhoid fever 24, measles 21, erysipelas 4.

From scarlet fever New York 23, Philadelphia 3, Baltimore and Washington 1 each. From cerebro-spinal meningitis New York 8, Washington 4, Baltimore, Boston, Worcester, Cambridge and Somerville 1 each. From typhoid fever Philadelphia 7, New York, Boston, Cincinnati and Washington 3 each, Baltimore 2, Cambridge and Salem 1 each. From measles New York 14, Philadelphia 2, Baltimore, Cincinnati and Washington 1 each. From erysipelas New York 2, Philadelphia and Boston 1 each.

In the thirty-three greater towns of England and Wales, with an estimated population of 11,218,378, for the week ending May 14th, the death-rate was 16.6. Deaths reported 3,577; acute diseases of the respiratory organs (London) 232, measles 133, whooping-cough 115, diphtheria 50, diarrhea 32, fever 27, scarlet fever 26.

The death-rates ranged from 10.0 in West Ham to 22.6 in Liverpool; Birmingham 17.6, Bolton 22.1, Cardiff 11.7, Croydon 14.7, Gateshead 17.1, Hull 17.0, Leeds 18.6, Leicester 15.5, London 15.7, Manchester 21.8, Newcastle-on-Tyne 15.9, Nottingham 15.5, Portsmouth 16.8, Sheffield 18.9, Sunderland 18.9, Swansea 18.4, Wolverhampton 17.2.

METEOROLOGICAL RECORD

For the week ending May 21st, in Boston, according to observations furnished by Sergeant J. W. Smith, of the United States Signal Corps:—

Date.	Barometer	Thermometer.		Relative humidity.			Direction of wind.		Velocity of wind.		We'th'r.		Rainfall in inches.	
	Daily mean.	Daily mean.	Maximum.	Minimum.	8.00 A. M.	8.00 P. M.	Daily mean.	8.00 A. M.	8.00 P. M.	8.00 A. M.	8.00 P. M.	8.00 A. M.		8.00 P. M.
S...15	30.12	54	60	48	63	100	82	N.	E.	4	10	O.	F.	.14
M...16	29.39	50	52	47	98	93	96	N.E.	N.	14	6	R.	R.	.29
T...17	29.87	53	58	48	75	60	62	N.W.	N.W.	9	20	C.	C.	.07
W...18	30.04	56	66	47	63	58	60	N.W.	S.	9	12	C.	O.	
T...19	29.90	68	80	56	54	62	58	S.W.	S.W.	15	15	O.	O.	
F...20	29.90	72	84	59	67	50	68	S.W.	N.	15	6	F.	O.	.06
S...21	30.32	58	62	54	52	60	56	E.	S.	7	12	C.	C.	

* O, cloudy; C, clear; F, fog; G, fog; H, haze; S, smoky; R, rain; T, rest; N, snow. † Indicates trace of rainfall. — Mean for week.

OFFICIAL LIST OF CHANGES IN THE STATIONS AND DUTIES OF OFFICERS SERVING IN THE MEDICAL DEPARTMENT, U. S. ARMY, FROM MAY 21, 1898, TO MAY 27, 1898.

The following assignments of officers of the Medical Department are made:

To 1st Army Corps: LIEUT.-COL. RUSH HUIDEKOPER, U. S. V.
To 2d Army Corps: LIEUT.-COL. ALFRED C. GIRARD, U. S. V.
To 3d Army Corps: LIEUT.-COL. JOHN VAN R. HOFF, U. S. V.
To 4th Army Corps: LIEUT.-COL. ROBERT M. O'REILLY, U. S. V.
To 5th Army Corps: LIEUT.-COL. BENJAMIN F. POPE, U. S. V.
To 6th Army Corps: LIEUT.-COL. NICHOLAS SENN, U. S. V.
To 7th Army Corps: LIEUT.-COL. LOUIS M. MAUS, U. S. V.

FIRST-LIEUT. WILLIAM E. RICHARDS, assistant surgeon, having reported to the surgeon-general, in compliance with orders, will proceed to Mobile, Ala., and report in person to the commanding general, 4th Army Corps, for duty in the field with the 5th Cavalry.

CAPTAIN JOSEPH T. CLARKE, assistant surgeon, will proceed to Tampa, Fla., and report in person to MAJOR-GENERAL WILLIAM R. SHAFFER, U. S. V., for assignment to duty.

Acting Assistant Surgeon FRANCIS W. HARRELL, U. S. A., will proceed from this city to San Francisco, Cal., and report to the commanding general of the expedition to the Philippine Islands for duty.

The following named officers of the Medical Department will proceed to San Francisco, Cal., and report for duty with the expedition to the Philippine Islands: LIEUT.-COL. HENRY LIPPINCOTT, deputy surgeon-general, CAPTAIN WILLIAM O. OWEN, assistant surgeon, CAPTAIN EDWARD R. MORRIS, assistant surgeon, FIRST-LIEUT. HENRY PAGE, assistant surgeon.

OFFICIAL LIST OF CHANGES OF STATIONS AND DUTIES OF COMMISSIONED OFFICERS OF THE UNITED STATES MARINE-HOSPITAL SERVICE FOR THE FOURTEEN DAYS ENDING MAY 26, 1898.

VANSANT, JOHN, surgeon. Granted leave of absence for two months from June 1, 1898. May 24, 1898.

GASSAWAY, J. M., surgeon. To represent Service at meeting of American Medical Association at Denver, Col., June 7-10, 1898. May 18, 1898.

GLENNAN, A. H., passed assistant surgeon. Relieved from duty in hygienic laboratory and directed to proceed to Tampa, Fla., for duty. May 13, 1898.

WHITE, J. H., passed assistant surgeon. To proceed to Delaware Breakwater Quarantine as inspector; then to report at Bureau for special duty. May 20, 1898.

KINTOUN, J. J., passed assistant surgeon. To install exhibit of Service at Trans-Mississippi and International Exposition at Omaha, Neb. May 12, 1898. To represent Service at meeting of American Medical Association at Denver, Col., June 7-10, 1898. May 18, 1898.

BROWN, B. W., passed assistant surgeon. Granted leave of absence for two days from May 29, 1898. May 26, 1898.

ROSENAU, M. J., passed assistant surgeon. Granted leave of absence for ten days from May 18, 1898. May 16, 1898.

DECKER, C. E., assistant surgeon. Granted leave of absence for one month from May 24, 1898, on account of sickness. May 23, 1898.

HARTINGS, HILL, assistant surgeon. To represent Service at Trans-Mississippi and International Exposition at Omaha, Neb. May 12, 1898.

SOCIETY NOTICE.

MASSACHUSETTS MEDICO-LEGAL SOCIETY.—The annual meeting will be held at the Medical Library, 19 Boylston Place, on Tuesday, June 7th, 12 M.

The following papers will be read. Dr. Horace K. Foster: "The Williams Murder Trial."

Dr. E. G. Holt: "The Barnes Murder Trial."

Dr. G. de N. Hough: "Case of Cephalic Tetanus."

Members of the medical profession are cordially invited.

JULIAN A. MEAD, M.D., Secretary.

BOOKS AND PAMPHLETS RECEIVED.

Prevention of Yellow Fever and the Quarantining of Houses to Stamp it Out. By Stanford E. Chailié, M.D., New Orleans, La. Reprint. 1898.

Salivary Calculi. The Climatic Influence of our Southwestern States on Diseases of the Respiratory Tract. By W. Freudenthal, M.D., New York. Reprints. 1898.

A Preliminary Report on a Method of Overcoming High Resistance in Crookes' Tubes; A Possible Step toward Maximum Radiance. By Wm. W. Graves, M.D., St. Louis, Mo. Reprint. 1898.

Abdominal Surgery. By J. Grieg Smith, M.A., F.R.S.E., Surgeon to the Bristol Royal Infirmary; Professor of Surgery, University College, Bristol. Sixth edition. Edited by James Swain, M.S., M.D., Lond., Fellow of the Royal College of Surgeons of England; Professor of Surgery, University College, Bristol; Assistant Surgeon to the Bristol Royal Infirmary. Volumes I and II.

Cataphoresis, or Electric Medicamental Diffusion as Applied in Medicine, Surgery and Dentistry. By William James Morton, M.D., Professor of Diseases of the Mind and Nervous System and Electro-Therapeutics in the New York Post-Graduate Medical School and Hospital; Member of the Medical Society of the County of New York; Member of the Röntgen Society of London. New York, etc.: American Technical Book Co. 1898.

Procedures Recommended for the Study of Bacteria; with Especial Reference to Greater Uniformity in the Description and Differentiation of Species. Being the Report of a Committee of American Bacteriologists to the Committee on the Pollution of Water Supplies of the American Public Health Association. Submitted at the meeting of the Association in Philadelphia, Pa., September, 1897. Concord, N. H.: The Rumford Press. 1898.

A Manual of Instruction in the Principles of First Aid to the Injured, including a Chapter on Hygiene and the Drill Regulations for the Hospital Corps, U. S. A., designed for Military and Civil Use. By Alvah H. Doty, M.D., Health Officer of the Port of New York; late Major and Surgeon, Ninth Regiment, N. G. S. N. Y.; late Attending Surgeon to Bellevue Hospital Dispensary, New York. Second edition, revised and enlarged. New York: D. Appleton & Co. 1898.

Original Articles.

HOW RUSSIA CARES FOR HER FOUNDLINGS.¹

BY J. L. HILDRETH, M.D., CAMBRIDGE, MASS.

(Continued from No. 22, p. 511.)

THE sick and well children are kept carefully apart—a certain group of wards being assigned for each; and for contagious diseases there is an infirmary, situated in another building. In case of an epidemic there is available, in addition, a pavilion especially erected for the purpose. Small-pox and scarlet fever are of occasional, although infrequent, occurrence; but the cases of erysipelas average 120 yearly, and those of diphtheria 200. But congenital syphilis claims the largest proportion, reaching every year an average of 1,000. It occurs most frequently among infants prematurely born. All fatal cases of importance are followed by an autopsy. (Report, p. 18.)

The total number of invalid children cared for in the different wards averages about 11,000 annually. Should this seem a very large proportion of the number received, it must be remembered that the children remain at the Home for only a short period—varying from two to six weeks—and that the most critical. No doubt the health reports of an older period would make a better showing. The plan is to keep the children in the Home only until they can be safely vaccinated, and the result of the vaccination found satisfactory, and then to send them into the country. An average of 40 infants daily are vaccinated, the sole vaccine used being that of the heifer. In the spring of the year, when communication with the outlying districts is interrupted by the overflow of the rivers, the arrangements for sending away the foundlings are necessarily delayed, and a distressing over-crowding of the Home results, with often an increase in sickness and mortality. Under such circumstances, the Home sometimes shelters 1,400 nurslings at once, nearly three times the number for which it was designed.

When the hospital staff is complete, it numbers 950 wet-nurses, 150 nurses, 16 superintendents, and 54 visiting physicians. Of the physicians, 18 serve at a time, changing every four months. Each section is visited daily by one of them, and a careful inspection made of the nurses as well as the infants. The nurse of each sick child is given a paper on which is carefully noted the doctor's statement of the nature and progress of the malady, the necessary treatment, variation in weight, effects of vaccination, change of nurse, etc. Whether this paper is of any use to the nurse herself, may be doubted. Reading is by no means a universal accomplishment, as yet, among the peasant classes of Russia.

It was the original intention to keep the foundlings within the shelter of the Moscow Home until they should be of an age to learn trades and provide for themselves. But hospital life, under the best possible conditions, is an unhealthy one for children, and epidemics and a steady increase of mortality soon made it apparent that some other plan must be adopted. Less than forty years after the founding of the Home—that is, about the end of the last century—the present system of rural distribution and inspection was set in operation. It now embraces within its

scope not only the government of Moscow, but five adjacent governments, comprising an area of 50,000 verst (about 21,500 square miles) in which are more than 5,000 villages. It would be interesting to know how the health of these rural communities is affected by this distribution among them of so many feeble and sickly children, many of them suffering from tendencies to disease which the six weeks' stay in the Home cannot have materially changed. Such a wholesale scattering of the sickness and vice of congested city life among a rural population is quite without parallel in our own country, although something like it is found, as will be seen later, in other countries of Europe. More than half of these miserable children were born in Moscow; and it would seem that Moscow—not remote rural districts—ought to bear the burden of their diseased lives. On the other hand, there is always the hope that, with wholesome and favoring conditions, cures may be effected, and so the little foundling grows to be no burden, but a help to his community.

The territory within the distributing system is restricted—there being 41 districts—with a medical inspector for each. The number of foundlings—or wards, as they are usually called after they leave the Home—under the care of each inspector ranges from 500 to 1,000. The peasant woman who desires to increase her scanty store by adding yet one more charge to those already within her narrow home, must apply to this inspector, be examined by him, and bring from him a certificate as to her age, parentage and condition. Upon presenting this certificate in Moscow, after a journey whose toilsomeness we can scarcely picture to ourselves, and agreeing to the conditions imposed, she is sent back with her nursling at the government expense. The understanding is that the child thus taken will remain in her home, cared for and treated as one of her own, until it is old enough to marry, if a girl, or, if a boy, to learn a trade and maintain itself. Should special reasons arise, the arrangement may be terminated by the return of the child to the Home, but, ordinarily, it is of indefinite continuance. Apparently the wards learn to look upon their foster-parents as their own, and the relations begun in so business-like a way grow to be really filial and parental. At least, so the official report would have us think. But, human nature being what it is, we may be pardoned for suspecting that in Russia, as in countries less remote, inspection is sometimes inadequate and abuses creep in which make the fate of a little foundling, now and then, far different from that which a loving mother would have wished for him. Nevertheless, there can be no question that the children are happier, on the whole, and better fitted for the experiences of after life, than if they had grown up within the walls of the Home at Moscow.

The compensation received by foster-parents was admitted by the report of 1893 to be inadequate, although it was eagerly sought for. It may have been increased since that time. It was then about \$18.72 a year for the first two years (the value of the Russian rouble is so fluctuating that these figures are only approximate), for the third year, \$14.97; for the fourth, fifth and sixth, \$11.86; for the seventh, eighth, ninth and tenth, \$9.98; and for the eleventh, twelfth, thirteenth and fourteenth, \$6.24. This rate of payment is somewhat increased if the

¹ Read before the Cambridge Medical Improvement Society, April 25, 1898.

child's physical condition is such as to require especial care—as in cases of paralysis, epilepsy or imbecility—or if it prove incapable of physical labor and so can be made of no service to its foster-parent. In cases of acute sickness the wards receive gratuitous treatment in four hospitals established for the purpose at as many different points among the villages. Still, these must be extremely difficult of access to many, however well-distributed they may be. Sufferers from serious chronic diseases, as well as those requiring surgical operations, are transferred to a special infirmary in Moscow.

The foster-parents agree not only to shelter, nourish and clothe the child in all respects as if it were their own, but also to teach it to read and write. The inspector, who visits each of his wards six times a year, gives his particular attention to all these points. Since the system of public instruction in Russia is still very inadequate, the hospital has established schools of its own for the primary training of its wards. These schools number 44; they are open to children of both sexes. For the encouragement of the foster-parents a gift of 10 roubles (a little more than five dollars is made to them when their charge receives a diploma.

Boys who pass through these village schools successfully, and show such talents as make further education desirable for them, are placed by the Home in the Teachers' Seminary, the agricultural or horticultural schools, the surgical schools, or the railway schools. Boys of less intellectual promise are apprenticed by their adopted parents to the various trades which their village offers, or are sent to Moscow itself for their apprenticeship. There are said to be nearly 1,000 of these wards in Moscow, learning some fifty different trades. For them, too, inspectors are provided, whose duty it is to watch over the welfare of these children, see that their masters give them proper instruction and do not ill-treat them, and settle differences arising between masters and apprentices. After the ward has passed through his apprenticeship, the inspector still keeps him under supervision, requiring him to deposit a certain part of his earnings regularly in the savings-bank, for future needs. On his reaching his majority, these savings are made over to him. The accumulation in the government savings-bank of such small deposits, belonging to these wards, frequently amounts to 30,000 roubles, nearly \$16,500.

In the case of the girls, the simplicity and naturalness of the life which is secured for them in these foster-homes shows more distinctly, perhaps, than with the boys. After leaving school, they usually remain with their foster-mothers, helping about the household tasks, until they marry. With most of them marriage occurs at about sixteen, an age not so precocious in Russia as it seems here. It is the business of the inspector to see that the circumstances of the intended husband are such as to ensure a reasonable degree of comfort—the principal requirements being that his parents should have a fixed place of abode and a piece of land—but the choice is said to rest with the girl herself. This gives as much chance for sentiment and romance as could be expected in a country of which it has been said that "in the peasant class, marriage and the creation of a new household have at all times been regulated chiefly by utilitarian considerations," and that "in no other country, perhaps, has personal inclina-

tion played so small a part in rural marriages." ² Certainly no such opportunity for the acquaintance before marriage which we Americans think so desirable could have been given to the girl within hospital walls.

A contribution of 50 roubles (\$26) is made by the Home to the ward's trousseau. In the rare instances where girls do not marry, they are often taken into the service of the Home at Moscow, as waiting-maids, laundresses, etc. All the unskilled labor of the Home is performed by these wards, there being usually about 200 of them there for that purpose. A school is provided within the Home for the benefit of those who have failed to receive adequate instruction in the country, and their leisure hours are devoted to study. They receive wages, and in time a life-pension.

Glancing back for a moment over this rapid review of the provisions which Russia makes for her foundlings, we notice that, in spite of passing its childhood in an average peasant's home, the foundling fares better, in respect to everything which money can buy, than the average peasant's child. It has better medical care and nursing in the first weeks of infancy, better hospital privileges at command all through life, better school opportunities in early years and better chances for a prolonged education if its talents warrant it, a better start in life and better provision for old age. And in Russia, it is said, these advantages are not offset by any such loss of reputation as would affect foundlings in our own country, since there no special stigma attaches to illegitimacy. As a matter of fact, however, only 25 per cent. of the foundlings live to reach their majority ("Encyclopædia Britannica"). This is about the proportion observed at the Paris Home for Foundlings.

It would be interesting to know something of the future of these wards of the State, but very little light is obtainable on that point. From them come many recruits for the public service, it is said. But it is to be feared that the experience of Russia, if the statistics were collected, would prove like that of other European countries where it has seemed that all the efforts at physical and moral training have not been able to overcome inherited tendencies to vice and crime. In France, it is said, that of the male convicts and prisoners, 18 per cent. are foundlings, while of the inmates of houses of ill-fame, 20 per cent. have the same origin. Facts like these have weight with those philanthropists who oppose such lavish provision for the maintenance of foundlings as is made in Russia, France and some other countries. But of these considerations we shall speak later.

Our sketch of the Russian system would be incomplete if no reference were made to the Foundling Homes at St. Petersburg and Warsaw, smaller than those at Moscow and receiving fewer infants, but managed on the same general plan and under the same government supervision. There are also smaller Foundling Homes in other parts of Russia.

The history of the Imperial Foundling Home of Moscow is of considerable interest. As its name indicates, it owes its origin to one of Russia's sovereigns—no less a character than the notorious Catherine II. What motives prompted this deed of benevolence—statesmanship, desire for popularity, a last lingering trace of superstition, a conscious affinity for such courses of life as fill hospitals like this with the abandoned, or a more worthy sympathy for distress and

² Leroy-Beaulieu: *Empire of the Tsars*, vol. 1, p. 490.

suffering—it is impossible to say. At least the dates show that scarcely more than a year after the murder of her husband—a crime in which Catherine has always been suspected of complicity—the initial steps were taken. The plans of empresses do not wait upon tedious subscription lists and committee meetings, and the hospital begun in September of 1763 was opened in April of 1764. Nineteen children were at once received, and baptised—for the empress, though at heart in sympathy with the French infidelity of her day—still conformed ostentatiously to the usages of the Russian church. The first two were named Catherine and Paul, in honor of the empress and the heir apparent. During the entire period of her reign, until her death, in 1796, Catherine granted to the hospital an annual subsidy of 100,000 roubles—a sum equal now to about \$52,000, but doubtless of much greater purchasing power at that time. The Grand-Duke Paul, for the same period, gave annually half that amount. Almost immediately voluntary subscriptions began to pour in—money, real estate and legacies. The most magnificent gift of all (1,200,000 roubles) was received from one of the Demidoff family, a family of which it has been said that “occupying a position in Russia similar to that held by the Rothschilds elsewhere, they are not more celebrated for their wealth than for their beneficence.”

It will be easily believed that an institution founded under such auspices has not lacked for resources. Before the end of Catherine's reign the reserve capital had reached the sum of 2,000,000 roubles. To-day, the general expenses of the Home amount to 1,800,000 roubles annually, about \$936,000. (Report, p. 30.)

It is the boast of the Home that its doors have never been closed—no matter in what public calamity, not during the plague of 1771 nor the cholera epidemic of 1830, nor even during the disastrous French occupation of 1812. During the latter period, indeed, an unexpected use was found for its resources, and it gave shelter, by order of Marshal Ney, temporary governor of Moscow under Napoleon, to large numbers of children whom the necessities of war had forced their parents to abandon. When the one hundredth anniversary was celebrated, in 1864, the total number of foundlings succored was reported as 468,560. By 1890, the number had risen to 812,989. If the second centenary finds the Home still in existence—as there seems no reason to doubt that it will—the total will be far beyond a million.

It seems almost ungracious to ask whether the administration of so ancient and splendid a charity has its dark side. And yet the thoughtful visitor cannot escape misgivings. Does such lavish and indiscriminate help really benefit? Is there no danger that it may increase the very evils it seeks to alleviate?

Certain facts are not without significance. Whether profligacy is increased by the facilities which a great foundling hospital like that at Moscow offers for disposing of the fruits of shame is a mooted question. But that unnatural indifference and selfishness on the part of legitimate parents thrive under such a system there is abundant evidence. The hospital report itself—assuredly not a source from which one would expect any but the most optimistic reflections—admits that a large number of legitimate children, not orphans, are probably sheltered there, and estimates the number of such as one-fifth the total number of admissions (page 14). When one considers the advantages which the

wards of the hospital enjoy over other children of humble parentage, one can understand how a father and mother might persuade themselves that they were really doing their child a kindness in casting it off. And yet one cannot approve the philanthropy which tempts to such a view of parental responsibility. Charities which have for their avowed object the assistance of the poor in the care and training of their children may commend themselves to both our sympathy and our judgment; but a charity which offers to parents the temptation to rid themselves wholly of their natural cares, under false pretences and by stealth, rests upon an entirely different basis. Such practices, continuing for generations, must degrade parental feeling, family life and public sentiment, to an extent beyond words or imagination.

The conditions of admission to foundling hospitals, even the utility of such hospitals themselves, had been matters of debate among statesmen and philanthropists for centuries before the Moscow Home was founded. Letters-patent of Charles VII of France, in 1445, affirm it as his royal opinion that “many persons will make less difficulty in abandoning themselves to sin when they see that they are not to have the charge of the up-bringing of their infants.”³ In Charles's day a large cradle was kept within the Cathedral of Notre Dame, accessible day and night, in which infants might be left, the clergy assuming their protection. But the funds for their maintenance were inadequate, the miserable little waifs were left in charge of poorly paid and unscrupulous servants, and shocking abuses arose. Street-beggars wanting a new-born infant with which to work upon the sympathies of the public procured one of these; if a nurse needed a babe to replace one that through her negligence had died, she resorted to the Foundling Home; even a witch, requiring a child for her loathsome sacrifices, could be accommodated there. The price asked was just twenty sous.⁴ In 1638, by the labors of St. Vincent de Paul, a better state of things was brought about: a new hospital was erected, and Sisters of Charity placed in charge; and the Parliament of Paris issued a decree securing to the institution annually the sum of 15,000 francs. Before many years this charity became fashionable. Louis XIV, in 1670, issued an edict commending it to all; and his queen, Maria Theresa, laid the corner-stone of a new and spacious Home.⁵ “By this time,” says an English reviewer, “two principles were acknowledged: the one, that it is a sin and crime to expose infants; the other, that it is a religious and social duty to bring up such foundlings. Neither of these principles had been controverted for centuries; but in some respects they had remained in a kind of abstract state. It was only now that they entered into the sphere of real life, where their action and reaction soon produced a series of unexpected problems, and gave rise to the question whether one evil had not been patched up by another seven times worse. For the abandonment of children, which up to that time had been an exceptional crime, became an habitual incident, demoralizing to society in proportion to its frequency. The mark had been overshot: it was necessary to aim a little lower.”⁶

The mark had been overshot, indeed; and the number of abandoned children increased, with the new provision made for them, out of all proportion to the

³ Chambers's Encyclopedia.

⁴ Harper's Magazine, vol. viii, p. 337.

⁵ Harper's, loc. cit.

⁶ Home and Foreign Review, London, vol. iii, p. 497.

increase of population. In 1638, when St. Vincent de Paul first took up their cause, the foundlings numbered 312, by the end of a century they were 1,738.⁷ At this period the so-called "turning-box system," first used in Marseilles in the thirteenth century, was in general use. "The turning-box," says the writer just quoted, "is a wooden cylinder, convex on one side, and concave on the other, turning easily on a central pivot. Its convex side is turned to the street, its concave side to the inside of a room. A bell is hung outside, close to the box. When a woman wishes to abandon her new-born baby she calls the attention of the guard by ringing the bell; the box is turned half round, so as to present its concave side to the street; the baby is put into it, and carried by another half-turn into the inside of the hospital. Turning-boxes were not abandoned in Belgium until 1860;⁸ they are still in use in some hospitals in Italy;⁹ and in China one may see what is practically their equivalent, in a drawer beside the outer door, nicely wadded with cotton, and communicating with a bell, which, as soon as the drawer with its freight is pushed back, summons a porter waiting within. A more easy method for a mother to abandon her child could scarcely be devised. It offers every opportunity for secrecy, and at the same time allows the mother, if she still has some lingering tenderness for her little one, to be sure that it has been received into warmth and safety.

This turning-box, or "*tour*," has been regarded as the visible symbol of the whole system of secret, and hence indiscriminate, admission, and over its use have been waged the most heated discussions. Both the merits and faults of the system have been so clearly displayed in France that it may not be unprofitable for us to continue our rapid survey of its progress there. In 1779, the state of things had become so scandalous as to call forth a decree of the royal council. "His Majesty," the decree runs, "has observed with grief that the number of infants exposed increases day by day, and that, at the present day, they are mostly the offspring of legitimate unions. So that these asylums, originally intended to prevent the crime into which fear and shame might drive an erring mother, have by degrees come to be nurseries for the criminal indifference of parents; and their abuse is growing so expensive to the State that in the great towns, the maintenance of such a multitude of children, has grown out of all proportion both with the revenues of the hospitals and with the care and attention which the officers of the civil service can give."¹⁰

But this was a royal decree, and the Revolution was at hand. The Revolutionists—with their lax ideas of morality, in our use of the term, and their exaggerated sense of the claims of liberty and fraternity—not only maintained the existing system, but conferred on the foundlings the affectionate and honorable appellation of "children of the State" (*enfants de la patrie*). Illegitimacy was declared to be no disgrace, and a premium of 120 francs was voted to every unmarried woman who should come forward and avow herself about to become a mother.¹¹ This insane enactment, however, was abolished in 1811, under the Empire, but the foundling hospitals continued to be administered as before, with the same indiscriminate admission.

Twenty-five years later, it appeared by the report of the Minister of the Interior, that even parents in easy circumstances were in the habit of saving themselves the expense of rearing their legitimate children by sending them to the foundling hospitals, which by this time were to be found in most of the large towns; and that it had come to be considered, especially in country places, perfectly simple and natural to have one's family brought up at the expense of the State.¹² In such a public sentiment as this, one can clearly trace the influence of the socialism of the period.

Practices more scandalous still were common. A later report asserts that it was considered a part of the professional duty of midwives to dispose of unwelcome children for their patrons, by carrying them to the nearest hospital, and the open advertisement of such a person is quoted, to the effect that she "desires to remind her numerous clients that she undertakes to effect the abandonment of natural children without any knowledge of the circumstances."¹³

Later legislation, however, has produced at least a partial reform in these respects. A Department of Outdoor Relief has been organized, by which assistance is given to poor mothers at their homes, thus diminishing the temptation to the desertion of legitimate children. Cradles and clothing are loaned, wet-nurses are provided, and money itself is sometimes given. Half the children annually on the registers of the Paris Hospital are in this outside department; but the experiment cannot be viewed with as much satisfaction as it otherwise might, for the mortality reports show five times as many deaths among infants thus cared for as among those received into the hospital.¹⁴ This is not surprising, considering the miserable condition of many of their homes.

(To be continued.)

THE PATHOLOGY, GENESIS AND DEVELOPMENT OF SOME OF THE MORE IMPORTANT SYMPTOMS IN TRAUMATIC HYSTERIA AND NEURASTHENIA.¹

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(Continued from No. 22, p. 514.)

II. — PAIN.

THERE is another symptom which is so common and often plays so dominant a part in the clinical picture of traumatic neuroses that an understanding of its pathology is desirable if we would understand the neurosis itself. This symptom is *pain*. An extended discussion of it may therefore be permitted.

The painful sensations complained of are of various kinds; but conspicuous among them are general pains without very special location, such as through the limbs, or indefinitely through the head. Of the origin of some of these pains we know next to nothing.

But more often, as shown by a study of the author's cases, pain is localized; as for example in the small of the back, and then is known as "traumatic lumbago,"

¹ Read before the Clinical Section of the Suffolk District Medical Society, May 18, 1896.

⁷ Harper's Magazine, vol. viii, p. 337.

⁸ Encyclopædia Britannica.

⁹ Chambers's Encyclopædia, Edition of 1896.

¹⁰ Home and Foreign Review, London, vol. iii, p. 497.

¹¹ Chambers's Encyclopædia.

¹² Home and Foreign Review, loc. cit.

¹³ Report of Commission of 1861, quoted in Home and Foreign Review, loc. cit.

¹⁴ Chambers's Encyclopædia, edition of 1896.

or over a particular rib, or in the neck, or a particular part of the head, or along the course of certain nerves.

In such cases careful inquiry generally elicits the fact that these painful localities were originally the seat of bruises or injuries, such as strains or blows.

At the time of examination, some months or possibly even two or three years after the accident, the most careful scrutiny fails to detect any evidence of local injury. Nevertheless, these pains may be such a source of suffering as to be the most prominent cause of disability and to occupy the patient's mind to the exclusion of all other symptoms. What is their pathology? Are they due to the persistence of local injuries? or are they symptomatic elements of the neurasthenic or hysterical state, and independent of the local injury? I think that either view is erroneous. The customary statement to be found in writings on the subject is that these pains are due to strains of ligaments or muscles. This explanation is insufficient. While plausible, when applied to the so-called traumatic lumbago, it will not explain similar pains in regions where there are no ligaments to sprain, or where the nature of the injury was such as not to sprain but simply to bruise; for example, pains of the scalp or cranium, following blows or contusions; pains over the shins or ribs or arms, following similar kinds of trauma. Nor will it explain the persistence of pain following injuries, which, under ordinary circumstances, would be well in a few days.

The true explanation, in the writer's opinion, is that these pains are of a psychical nature; originally excited by violence; they afterwards persist after the subsidence of the original injury, as *pure psychical phenomena*. While I do not wish to deny that sprains in individual cases may persist, nevertheless in the great majority of instances this is not the case. They are the manifestation of the concentration of the mind on the injured part. The evidence of this is to be found in the analogy of such pain with similar sensory phenomena in non-traumatic cases, and the absence of all objective injury in the painful parts. It is easy to demonstrate the psychical origin in individual cases, as I have done over and over again, by the complete cessation of the pain after suppression of the mental factor by suggestion and other allied means. The only matter open to question is general applicability of the principle. Reynolds,* as far back as 1869, called attention to this pathology in non-traumatic cases, ascribing the pain to the influence of ideas. The point is that any sensory phenomenon, particularly pain, which has been excited by any disease process, whether contusion, inflammation or functional disturbance, tends to persist, after the subsidence of exciting cause, so long as the mind dwells upon it, and imagines the persistence of the disease process.

It would be easy to cite illustrations of this drawn from non-traumatic cases. Every one of experience must have observed the tendency in neurasthenics and hysterics for pain and other disagreeable feelings to persist long after the local cause has ceased to exist.

It may also be laid down as a law, that in such subjects the tendency of pain is not to subside with the subsidence of the exciting cause, as in healthy persons, but to continue even without any fresh excitation from mental attention. If the mind is concentrated upon the local condition, the pain persists indefinitely; but, it would seem as if, even when no such psychical

factor can be detected, that there was a tendency for the pain vibrations once started to continue for a long period of time as a result of a single excitation — much as one hears the continuous vibrations of a musical instrument, or sees the oscillations of a galvanometer after the cessation of the single mechanical or electrical shock. It would seem as if the defect was an absence of an inhibiting or damping apparatus.

An analogous phenomenon in healthy people is the persistence of the sensation of the motion of the sea after landing from a ship or sail-boat. This is a distinct persistence of a sensation as a quasi-hallucination, after the cause has ceased to act.

When the mind is concentrated on the affected portion of the body, the intensity and persistence of pain is even more marked. Such pains become therefore in time pure psychical phenomena, sort of "fixed" feelings or quasi-hallucinations without objective source. Perhaps it may be that in some of these cases where there is no apprehensiveness or self-concentration of the mind that this absence is only apparent, and that there is, to use the common phraseology of the day, a subconscious attention from out the lower depths of consciousness, of which the patient has no waking knowledge. This can sometimes be demonstrated by hypnosis as in a case now under treatment. Be this as it may, the clinical phenomenon is indisputable.

In one subject, but non-traumatic, now under observation during a long period of time, I have observed this phenomenon over and over again. Exquisite pain and tenderness at the site of former perineal stitch, long-continued pain following the pressure of fifteen to twenty minutes' duration from a bicycle saddle, continuing local tenderness following a slight bruise of the arm or leg, — these are a few examples of what I have repeatedly observed in the same subject. In each instance the pain persisted long after the slightest trace of local injury has existed. More lately this same patient struck the globe of her eye with the corner of a sheet of note paper. Not a trace of inflammatory action that could be detected followed, but troublesome pain sufficient to demand treatment persisted for some weeks. In this and other patients I have been able to prognosticate the future development of this phenomenon at the time of slight illness or accidents.

Most of the localized pains experienced in parts that have been the seat of blows or other injuries by subjects of traumatic neurasthenia and hysteria are explicable in this way and there is little probability that they have other genesis. Thus a man, for instance, with hysterical stigmata suffered also from long-continued, severe pain in both hips and groins. At the end of a year absolutely nothing objective was to be made out. The foci of pain corresponded to the track over his body of the wheels of a fire-engine which ran over him in the deep snow without doing any serious injury to the bones or soft parts. Another exhibits a similar diagonal line across his body, corresponding to the passage of the wheel of a light wagon. Another receives a blow on the head from a descending gate, and suffers afterwards from continued localized pain in the head in the same place without objective signs of injury. Another, the subject of extreme hystero-neurasthenia, still suffers several years after a railroad accident from tenderness over the shins where originally were bruises. Noth-

* British Medical Journal, November, 1869.

ing else objective is to be made out. The psychical genesis of such pain is self-evident. Very instructive in this connection are an interesting class of cases in which pain is not persistent but comes on in attacks which are excited by various agencies, particularly mental agitation. Thus one patient suffered attacks of pain in a part of the body originally bruised, with other symptoms, when startled by loud noise, as from snow falling off the roof; such a noise, in his mind, perhaps, simulated the crash of the railroad accident. Another similarly suffered, even at times when free from pain, if, in conversation the accident was referred to. The law of association here excited pain of a purely psychical origin.

Algo-genesis (algos, pain; genesis, generation). — The persistence of pain and its revivification under the influence of attention is a clinical fact. It is not an isolated one but has its analogies in other sensory phenomena belonging to each of the senses. In other words, it is the consequence of a general physiological law. In truth the phenomena of a true functional disease are merely the expression of the same physiological law which under ordinary conditions determines the habitual and agreeable processes of the body and, under extraordinary conditions, determines disagreeable and so-called pathological ones.

The same phenomenon may be observed in connection with the visual, auditory, gustatory and olfactory senses, though perhaps not with each in the same degree. Thus, Galton, as is well known, has shown that some people have the power of seeing distinctly as an hallucination certain objects of their thoughts. Taking Galton's test question, for example, many persons by concentrating the mind can see the morning's breakfast table before them with each object upon it as distinctly as if it were a vivid dream. The same is true of anything else upon which such people intently think. Some, when thinking of numbers, actually see these before themselves and in definite position. This is the case with some of the mathematical prodigies. The degree to which this faculty of visualization is developed in some people is extraordinary. Bastian, in the development of his views of the mechanism of aphasia, calls those persons *visuals* who speak by means of visual memory-pictures of words.

In visualization, then, there is a revival, as a quasi-hallucination, or a memory-picture of a past experience. These memorial images are revived by thought alone, by concentration of the attention either directly upon the visual sensation itself or indirectly on an associated sensation. Similarly we have *auditives*. It is well known that a trained musician can hear the sound of the orchestra and each instrument of the orchestra from simply reading the score. Some people use auditory sensations for the use of language. I suppose, to use a familiar illustration, most people distinctly hear the sound of the speaker's voice when reading the address of a person with whom they have a personal acquaintance and whose voice is familiar to them. This is certainly so with myself.

As to the senses of smell and taste, the revivification of past sensations of each of these is less vivid than with visual and auditory images, but nevertheless the faculty exists with some people in a greater or less degree.

Now the same law must hold true for general sensibility as for special sensibility — for tactile, thermal and pain sensations; the law is general not special.

Pain sensations are, in some people, particularly easily revived as memory images, or quasi-hallucinations. Some perfectly healthy people have only to think of a pain in a certain part to have the feeling. This is especially easy if previously that part has been the subject of painful disease. From my own clinical experience I could recite numerous illustrations of this. Sometimes these disagreeable or painful sensations are excited, not by the thought of the sensation itself, but by associated images — as, in one patient, where nausea occurred at the sight of a rubber mat which recalled a similar mat on board ship; or when the thought of an imaginary cancer of the ovary, in another patient, excited pain in that region. These are all true memorial images of past sensations. Persons who exhibit the faculty may be called *algo-genetics*, and the phenomenon, when it constitutes a factor in disease, *algo-genesis*. We have then, *visuals*, *auditives*, *algo-genetics*, etc.

After psychical pains of this kind have persisted for any length of time, they become by the law of association so united with other sensations and movements that they tend to become excited by mere association alone, with or without mental concentration, that is, they become *habit pains*.

Traumatic Lumbago. — A very common location of pain and tenderness is the lumbar region. These then simulate lumbago.

The commonly accepted explanation of traumatic lumbago is, that it is a persisting sprain of the muscles and ligaments. While it is impossible to disprove that this may at times be the pathological condition present, it is extremely unlikely that in the majority of instances the pain felt in this location differs from that just described and manifested in other regions of the body. In many instances the purely psychical character of such a lumbago is obvious. The exquisite hyperesthesia of the muscles, extending even to the skin, is such as is never met with in true sprains. Not only the slightest movement but the lightest touch over the skin causes intense agony, and throws the patient into great mental agitation. All analogy would seem to indicate that with certain exceptions which, however, it must be difficult to make practically, the more moderate cases have a similar pathology. The origin of such a "lumbago" is undoubtedly to be sought in some trauma, but the persistence of the painful sensations can only be ascribed to psychical influences. If traumatic lumbago is really a persisting sprain, it seems inexplicable that it should not be frequently met with amongst football players, who should be particularly subject to such sprains.

Very often the original trauma can only be inferred from the nature of the accident, inasmuch as the victims of severe accidents are frequently too excited to remember much about the details, or loss of consciousness may have prevented this. But often enough the patient remembers quite clearly the circumstances of the accident; or the presence of bruises or wounds, which at the time were never felt, tells the story.

Ocular Pain, Pain from Diffusion of Nervous Energy. — We are perhaps on less sure ground when we seek to explain painful sensations other than those associated with or originally excited by trauma; but some of them, such as pain and headache on mental and physical exertion, are, in certain instances at least, intelligible. Pain or discomfort from using the

eyes is frequently complained of as in non-traumatic cases. This pain is usually in the eyes themselves; or it may be in the head, and then may be felt as localized pain or simply as a headache. Why should use of apparently uninjured organs like the eyes cause pain? If the eyes were inflamed or had been the direct object of trauma, such sensations might be intelligible, on general principles; but in the absence of such conditions, it seems, at first sight, paradoxical that the use of a healthy organ should cause pain in itself or in adjoining parts. Yet this is one of the commonest of symptoms in neurasthenia. An intelligible, even if not easily demonstrable, explanation of this is to be found in the law of *diffusion of energy under excessive mental or physical effort*. When the mind is in a perfectly healthy state, we are not conscious of any effort in concentrating the attention and fixing the eyes (including accommodation), while reading. But in doing this when the mind is tired, we are conscious of a distinct effort which increases proportionately with the increase of fatigue. Now all analogy with similar processes elsewhere in the body shows that we cannot increase the expenditure of nervous energy to one centre without diffusing a greater or less amount of energy to associated centres. Consequently when the mind is in a condition of fatigue, the increased mental effort demanded to work the visual apparatus, to contract the muscles of the eyes, to bring about the necessary amount of accommodation, to fix the attention and to unite together the various mental processes involved, diffuses itself as nervous discharge to associated cerebral centres of the sensory region. These sensory centres may be those for the eyeball, or closely associated centres for the scalp, the cranium, the back of the head, the neck, etc. Painful sensations in each region would respectively result, and we should have eye-pain, headache, occipital neuralgia, etc. A similar explanation would account for not only the eye-pain, but the headaches, the pain in the neck, and even in the back, which are so often met with in eye-strain from errors of refraction, etc. An element in the causation of the more distant pains in this affection may be the fact that to fix the eyes it is necessary to fix the head; the latter act involves the innervation of the muscles of the neck and even of the back. Hence, the increased effort required to overcome the effect of defective refraction would probably diffuse nervous discharge to all the sensory centres associated with the muscles involved.

Evidence in corroboration of this explanation may be drawn from analogous processes of which we have definite knowledge. For example: in an epileptic fit the discharge starting in one centre spreads successively to adjoining centres. In contracting a single group of muscles, as in flexing a finger, with increasing effort more widely distributed groups of muscles are successively thrown into contraction, so that, finally, when the whole force of the individual is exerted, all the muscles of the forearm, upper arm, shoulder, and even face and trunk, are violently contracted in the effort intended to contract simply a single group of muscles. The diminished contractility of the ocular muscles from accumulation of toxic substances probably also makes increased effort necessary.

Thus we have two factors contributing to the demand for increased effort in neurasthenia, diminished contractility of (fatigued) muscles after use and diminished cere-

bral power. On the sensory side we have the researches of Head, who has shown the very common diffusion in disease of the viscera of the afferent impressions from these organs to the associated sensory centres for the corresponding cutaneous regions, producing hyperesthesia, pain, etc., in definite cutaneous areas.

The phenomena described by Möbius as "*Akinesia Algæra*" has probably the same pathology, and exemplifies the excitation of painful feelings by nervous energy intended for muscular contraction alone. This is a group of symptoms which consists of pain excited by the voluntary contraction of certain groups of muscles. This may become so excessive that every movement may create pain, which thus may invade nearly every region of the body, and an incapacity for movement result that may simulate paralysis. The basis of the phenomenon is neurasthenia, hysteria or hypochondriasis. Pains of this nature are evidently analogous to the ocular pains just described, as has been recognized by Oppenheim, who also points out that the pains observed by Erb associated with hearing, as well as the pain excited in some patients by the ingestion of food, are of identical character.

The synchronous excitation of painful feelings by the effort intended for the contraction of the muscles alone, I have observed well exemplified in myself since my attention was drawn to this subject. I have noticed that while doing gymnastic exercises which included the usual flexions, extensions of the arms, etc., that, as the muscles became fatigued and greater effort was required, I was conscious of decidedly sharp tingling and stinging feelings over quite wide areas of the chest and body. These feelings were sharp enough to cause me, unconsciously as it were, to stop in the exercises and rub the parts. This called my attention to the phenomenon which I have studied with some care. This demonstration of the excitation of sensory centres by the diffusion of energy intended for muscular contraction seemed to me to be complete, for I could repeat the observation nearly as often as I chose. How common this is I do not know.

It is evident that after a while such pains, like those of *algæmetics*, by the law of association become habit pains, or what I have ventured to call an association neurosis. They then are excited by association rather than by diffusion of excessive effort.

The phenomenon of producing pain in one region of the body by slight irritation (as by scratching) of the skin in a distant area is not unfamiliar; likewise the intense pain in the back sometimes excited in neurasthenics by simply tapping the patellar tendon. The writer is familiar with one case, a man, in whom, during mental fatigue, the forced effort of silent reading causes an intense painful tickling in the larynx. This may be explained, possibly, by the close association of the larynx with the faculty of speech. In normal individuals the excitation of pain areas by muscular effort is of necessity, on principles of evolution, uncommon; but pathologically, especially in neurasthenia and hysteria, examples of this are of common experience.

In two subjects, both examples of neurasthenia with hysterical manifestations, pains of this kind have been so marked that I have found it impossible to have them carry out muscular exercises of the mildest kind. In one of them, after reducing the exercises to simple movements of one hand or one finger, pains of such severity have come on as to compel me to desist.

In the other patient I have found it not only impossible to have this patient learn to ride the bicycle, but even to use what is called the "Home Trainer" in the house. The simple revolution of the pedals of the bicycle, without propulsion and almost no resistance, for five or ten minutes always induces such severe pains that the experiment has been given up, though persistently pursued for some time. And yet both these subjects will use the same muscles with equal energy for other purposes without ill results. For example, I have known the first subject to haul furniture about a room, and make quite violent muscular action which she strongly desired without the slightest pain following, although the gymnastic movements above referred to always resulted in pain. The second patient is able to walk quite long distances, go up and down stairs, etc., also without pain.

In both these cases it has been manifest that the development of pain with muscular exertion depends very largely upon the attitude of mind of the patient. When the muscular action is a customary one, or one that is enjoyed and desired by the patient, the pains do not usually follow unless the patient is fatigued; but when the muscular exertion is a novel one, involving new co-ordinations of movements, or is disagreeable and not to the taste of the patient, the pains always follow. The explanation of this difference is, that in the latter class of cases much more effort of will and nervous energy is required than in the former class.

The most probable explanation of the phenomenon itself, it seems to the writer, is this diffusion of nervous energy intended for the muscles to sensory centres. This may be the cause of the pain in torticollis and some of the occupation neuroses in which muscular spasm plays a prominent part. Why in certain cases special sensory areas should be excited in preference to others must depend upon various intricate conditions which we are not yet in a position to define, but among them will be found the natural anatomical and physiological associations of the brain on one hand, and such antecedent pathological conditions on the other as may have originally excited directly these sensory areas and brought them into close association with the other centres in question.

Habit Symptoms.—It is very common for secondary symptoms of this kind, as well as original primary symptoms, to persist long after the pathological condition which gave rise to them has ceased to exist. They then continue as habit symptoms, and may complicate the original neurosis, or persisting alone may give rise to a pseudo-neurasthenia or hysteria. It is not inconsistent with probabilities that the way in which this comes about is as follows: the frequent excitation of nervous processes of whatever nature (motor, sensory, vaso-motor, mental, etc.) in association with each other, or with any physiological act, tends to group them together and so unite them that the excitation of one of them or the performance of the physiological act, excites all the others. At first the nervous processes (symptoms) are pathological; but with every repetition of the excitation the union of the different members of the group becomes firmer until finally any thing that excites one member excites the rest. For example, let us take the pain in the eyes (above discussed) brought on by effort in neurasthenia. At first this depends on fatigue and the increased effort needed to overcome this condition. By frequent repetition this pain becomes associated with

contraction of the muscles of accommodation and of the eyeball, etc. The final result is that after fatigue has passed away, any use of these muscles brings on the same pain which then becomes a habit pain. Habit symptoms, or association symptoms, of this kind are in their nature truly functional, and if this interpretation be correct, depend upon the same physiological law upon which all education depends. It is owing to the same law that we are able to acquire the faculty of language, the mechanical arts, the art of music, painting,—in fact, all acquirements and knowledge. The musician who sees a bar of musical notation before him, hears at once the sounds of various orchestral instruments necessary for the score, and his fingers automatically strike the keys of the instruments that will reproduce the sounds. The auditory images, the visual images and the motor impulses are all associated in one group. These are all physiological habits. The essential difference between physiological habits and pathological habits is that one is the result of voluntary education and is agreeable, and the other is the result of involuntary education and is disagreeable. The law which governs the two classes is the same. The nervous system has not two laws, one for pleasant feelings and desired acquirement, and one for unpleasant feelings and undesired acquirements; but the laws governing the nervous system are general not special.

But the sensations that accompany physiological habits may have an unpleasant character, their purpose evidently being to aid in the preservation of the species. Among such habits may be mentioned the feeling of hunger and the local gastric feelings that are felt at a particular hour of the day, that is, in association with various daily actions. If the dinner hour is changed, say from 1 to 2 o'clock, these feelings after a time are correspondingly delayed and a new habit formed. Likewise the feelings in connection with a desire to urinate, which may become associated with various social habits, and from this cause may become so frequently excited as to become a neurosis, as I have seen in several cases.

(To be continued.)

CHANGES IN THE TURBINATED BONES IN CONNECTION WITH DEFORMITIES OF THE SEPTUM.¹

BY A. COOLIDGE, JR., M.D.

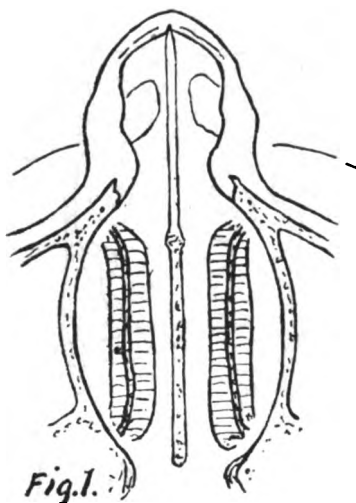
THE path travelled by the air in respiration between the external nostril and the naso-pharynx is bounded throughout by the septum as its inner wall. From the outer wall, for the greater part of the distance, project the turbinated bodies, which much diminish the lumen of what would otherwise be a wide passage. At each end the lumen contracts, forming an entrance and exit to the central nasal cavity, and at these points the outer wall is simply an arch of bone; the nasal process of the superior maxillary in front and the internal pterygoid plate behind (Fig. 1). These arches are in most skulls fairly symmetrical.² The posterior border of the vomer, which forms the free edge of the septum as seen in the posterior nasal mirror, is almost always perpendicular, so that the passages from the

¹ Read before the Boston Society for Medical Improvement, March 7, 1898.

² See Harrison Allen, Transactions American Laryngological Association, vol. x.

two nasal cavities to the cavity of the pharynx are in most skulls the same in size. But in the rest of the septum and the turbinates irregularities are so common that asymmetry is the rule.

The entrances to the nasal cavities, between the cartilaginous septum and the nasal processes of the maxillary bone, or soft parts in front of them, are often of unequal size. The septum is here often bowed or bent, and this must necessarily contract the lumen of one of the passages. This point is anterior to the erectile structures of the turbinated bones, and consequently the area of cross-section of the air-channel is not constantly varying, as it is within the nasal cavity proper. A small degree of narrowing of one or both sides at this point is of no consequence; a greater degree must necessarily cause a perceptible obstruction to breathing.



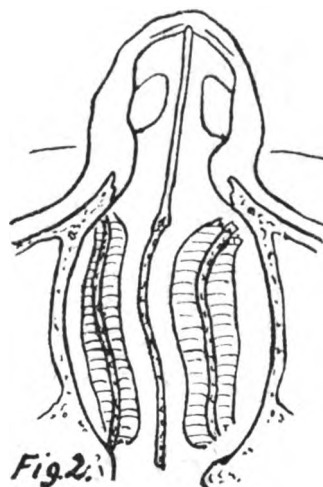
Horizontal section through nasal cavity a short distance above floor.

My object here is to discuss those changes in the size and shape of the turbinated bodies which we find almost constantly opposite deformities of the septum, and I therefore leave out of consideration all cases in which there is irregularity of the anterior portion of the cartilage of the septum in front of the turbinates.

Within the normal nasal cavity by the varying turgescence of the erectile tissue of the turbinated bones the area of cross-section of the air-channel is constantly changing, increasing with an increased demand for air, either on account of increased bodily activity or on account of temporary obstruction of the other side, and decreasing again when less air is demanded by the lungs. These respiratory channels through the nasal cavities tend to take the shape of slits rather than of cylindrical tubes, a manifestly better device for warming and moistening the inspired air (Fig. 3). In such an organ it is evident that the slightest departure of the septum from a perpendicular plane would seriously obstruct one nostril and widen the other, unless there were a corresponding change in the size and shape of the turbinated bones or of the tissue covering them. This change is found pretty constantly in cross-sections of skulls; but it is much better studied clinically; that is, the change in shape of the turbinated bodies is due to a change in size and shape partly of the bones, partly of the soft parts covering them. The ethmoid cells also often take

part in such changes as affect the middle turbinated bone.

The nasal septum, both bone and cartilage, is in most skulls bent more or less out of a perpendicular plane. This bowing may be simple or sigmoid or irregular, and may extend for a longer or shorter distance in a horizontal (Fig. 2) or perpendicular (Fig. 4) direction, or in both. There are also commonly found certain spurs or ridges of cartilage and bone, following the lines of suture between the triangular cartilage and the septal bones, and occurring more frequently on the convex side of a bowing septum. These outgrowths obstruct one of the nasal cavities in the same way that a deviating septum does, but without any corresponding concavity on the opposite side. These spurs, or the convexity of the septum itself, may come in contact with one of the turbinated bodies,



Deviation of the septum and adjustment of the turbinated bodies.

but in the great majority of cases they do not; the turbinates recede, and the air channel is maintained. Conversely, in the opposite or concave side the turbinated bodies advance, equalizing the air-carrying capacity of the two passages (Figs. 2 and 4). The accuracy of this adjustment is often very pretty. A localized depression in the septum is accompanied by a bulging of that part of the turbinated bone which is just opposite to it; or a ridge running the greater length of the upper border of the vomer has opposite to it an oblique furrow in the lower turbinate. It is only when the ridge projects so far that the turbinated bone is crowded to the wall, as it were, that a permanent contact takes place.

Taking up the subject from a clinical standpoint I will begin with the following propositions, and then speak of each separately:

(1) Within the nasal cavities nature attempts to maintain slit-shaped channels for the passage of air, to avoid contacts and to keep the air-carrying capacity of the two sides approximately equal. This is done by change in shape of the turbinated bodies to correspond with deformities of the septum. From this it follows

(2) That the question of pathological hypertrophy or atrophy of a turbinated body must be judged not from its actual size but from the width of the air-passage. A turbinate should be large if it is opposite

a concavity in the septum; in fact, a normal-sized turbinate in this position is pathological.

(3) Consequently, in treatment, the removal of such a turbinate is not indicated, except possibly in connection with operations on the septum.

(4) We do not know to what this vicarious change in the size of the turbinated bodies is due.

I am aware that these propositions differ to a greater or less extent from the orthodox teaching of many of our text-books. The anatomical facts have long been observed, notably by Zuerkandl,³ but the explanation has generally, it seems to me, involved too much pathology. A twisted septum may justly be considered pathological, but an adjustment of the turbinated body to that twisting should not be called hypertrophic or atrophic rhinitis.

In order to judge of the clinical importance of this

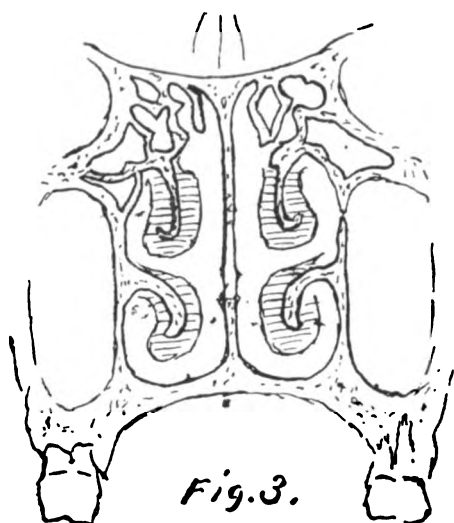


Fig. 3.
Perpendicular cross-section through the nasal cavities.

central bowing of the septum, compensated by these changes in the turbinated bodies, I have asked a large number of patients to tell me which of the two nostrils was generally the more open. Among those in whom the deformity is not unusually excessive, and where the anterior inch of the septum is not obstructing, the common answer is that they have not noticed any difference. Where one side is thought to be more often obstructed than the other, even with those patients who had given attention to the subject, the concave side with the large turbinated body is as frequently chosen as the other. The relative proportion of air passing through the two nasal chambers is in many persons constantly changing, first one side and then the other taking less than its proper half. This is more true in cases of catarrhal disturbance, but it occurs also without other symptoms.

I do not wish to be understood as saying that a bowing of the septum in the nasal cavity does not affect the respiratory capacity of the nose. In a normal nose there is a great difference between the actual and the possible amount of air-space. The actual space is just enough to let sufficient air through and to warm and moisten it. The possible space is that which is made by shrinkage of the erectile tissues. This reserve space is useful when more air is needed by the body, or when one side is doing all the work. A bow-

³ Anatomie der Nasenhöhlen.

ing of the septum necessarily diminishes the possible space of one side while the shrinkage of the turbinated bodies keeps the actual space sufficient for ordinary breathing. On the opposite side the enlargement of the turbinated bodies is often more than enough to make up for the increase in space due to the concavity of the septum, and consequently the possible space is diminished in this side also. The result is a decreased power of the nose to respond to a demand for more air, and an increased liability to stoppage on account of catarrhal swelling.

In the examination of a nose with the nasal speculum a large turbinated bone is easier to see than a localized bowing of the septum. This should be known by every one before he begins to judge of the appearances which he sees in the nose. A large turbinated bone should lead to a careful examination of the sep-

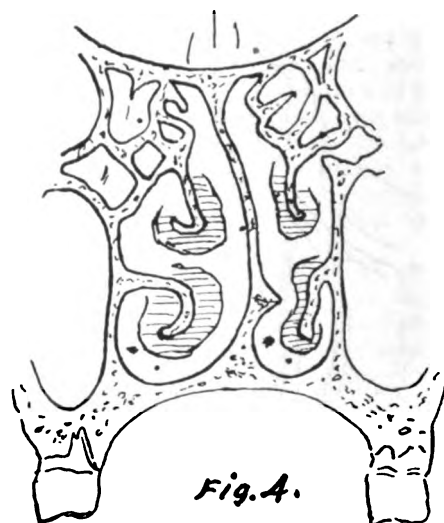


Fig. 4.
Deviation of the septum and adjustment of the turbinated bodies.

tum; and, as I said in my second proposition, the integrity of the turbinated body should be judged by the width of the air-space remaining between it and the septum (Fig. 4).

There are a large number of cases in which this adjustment has not, or has only partially, taken place. These cases are generally the ones which show distinct pathological symptoms, and so accentuate the fact that this adjustment is essential for preserving the functions of the nose. In cases in which this enlargement to fill a concavity has for some reason not taken place, or when the turbinated bone has been destroyed, most of the air goes through this side, the mucous membrane becomes dry, crusts may form, and we have the appearances of a unilateral atrophic rhinitis. Where a turbinated bone has not properly receded from a spur or a convexity, or cannot recede farther, we find contacts and obvious obstruction to breathing.

The more common operations for straightening the septum, the breaking up of the resiliency of the cartilage and the insertion of splints or tubes, such as that of Asch, affect principally the anterior portion and derive their brilliant results from opening a clear passage into the nasal cavity proper.

An operator may be tempted to attack the most obvious abnormality in a nose, one very large turbinated body; but operation directed to this enlarged turbinated body, simply because it is large, seems to me a

mistake. If we succeed in permanently diminishing its size, we have increased the air-carrying capacity of one side at the expense of the proper ventilation of the other side; we run the risk of destroying the normal functions of the nose and defeat a device of nature for minimizing the disadvantages of a bent septum. If we want more space we should open the narrow nasal cavity by removing ridges and bring the septum towards a perpendicular plane. This may bring the redressed septum into actual contact with the large turbinated bone on one side and leave a wide space between the septum and the small turbinated bone of the other (Fig. 4). But this is a condition which nature will be able to relieve by a readjustment in the shape of the turbinated bodies. This readjustment I have found in a few cases. My experience is that it is accomplished mostly by erectile tissue, but that sometimes, especially in young persons, the bone itself gradually changes its shape. It is sometimes advisable to remove part of the large turbinated bone after this redression.

In seeking for the cause which produces this change in the shape of the turbinated bodies to fit the irregularities of the nasal chambers, it seems to me that no local mechanical process is sufficient to explain it, and that we must look upon it broadly as a special power of adjustment given to the turbinates to enable them to fulfil their physiological duties, which but for this would be seriously hampered by even a slight bend in the septum. Other instances in which a deformity of some part of the body is followed by readjustment of neighboring parts are not uncommon. The shape of the face, and especially of the eyes in long standing cases of wry neck; and different changes in connection with deformity of the spine may be mentioned.

It has been suggested that the bending of the septum may be the effect and not the cause of the irregular turbinated bones; but in that case it is hard to see why the turbinated bones of the two sides should so act in harmony; neither is it likely that a part of a lower turbinated bone receding from a spur should be the cause and not the effect of the spur. Also the septum is especially liable to deformity anterior to the turbinated bones, where the external nasal walls are asymmetrical and unyielding.

Other theories to account for this change are based upon the supposed action of the air current which, going with more freedom through the larger opening produces trophic changes in certain parts of the turbinated bodies, either by change in tension or by the impact of the air, causing local inflammatory processes or hyperemia or anemia. But as I have said before, there is not necessarily more air going through the concave side. Also the one or the other nasal channel may be obstructed anteriorly without affecting this adjustment.

In this connection I should like to call attention to two cases in which there had been congenital occlusion of the nares, and consequently no currents of air had passed through the nose. In both of these cases the septum was bent, and in both of them the turbinated bodies followed the irregularities of the septum.

The first case I saw by the kindness of Dr. J. P. Clark, who reported it before this Society on November, 15, 1897.⁴

The second case is briefly as follows: M. P., Swedish domestic, eighteen years of age, had a fever when

six years of age. Otherwise no history of any disease, either general or local. As long as she can remember she has never been able to breathe through the right nostril. Patient came to the Massachusetts General Hospital on September 9, 1897. She was then breathing comfortably through the left nasal passage, not being obliged to use her mouth except on exertion. The left cavity was normal. The right was separated from the post-nasal space by a plate of bone covered with mucous membrane. The posterior rhinoscopic mirror showed a normal posterior nares on the left side. On the right was a smooth surface continuous with the pharyngeal wall with no line separating it from the septum or the vault of the pharynx. This partition I drilled through with trephines and the patient now breathes well through it, although I have not yet completely removed it. The point to which I especially wish to call attention is the fact that there is a localized bowing of the septum beyond the middle of the nasal chamber, presenting a concavity in the right side opposite the lower turbinated bone (Fig. 2), and that there is a corresponding bulging of the turbinate towards this concavity, as in the case of Dr. Clark's, where the occlusion was bilateral.

In closing, I have only to add that it has seemed to me that the subject is one which has not received the attention which it deserves. This adjustment of the turbinated bodies is clinically so common that to a certain degree it might be said to be the rule rather than the exception; and still it is very lightly touched on in our text-books, and is a constant source of error to students and to practitioners with a limited experience in examination of the nose.

OBSERVATIONS ON MALIGNANT ADENOMA OF THE RECTUM.¹

BY A. T. CABOT, M.D.,

Surgeon to the Massachusetts General Hospital.

IN malignant disease of the rectum the rational time for operation has usually passed when the surgeon first sees the case. The early stages of cancer of the rectum are painless, and the slight irritation felt at first is commonly disregarded. During the time thus lost the lymphatics become infected and any radical cure is thereafter hopeless.

Since Kraske's paper in 1885 the operative technique has been so improved that the removal of a growth in the lower bowel is not extremely difficult or dangerous. The ready access to the parts afforded by the posterior incision, with the removal or displacement of the lower part of the sacrum, enables us to make our dissection intelligently under the guidance of the eye and to readily control hemorrhage.

The upper part of the rectum is so movable that it can be drawn down for a considerable distance, and the peritoneum has no terrors for us when any opening made into it is in sight and can be closed by sutures. The exactitude with which operations of this region can be carried out greatly increases the chance of the radical cure of malignant growths there; but, in order that this cure may be accomplished, it is important to recognize these growths early.

Most carcinomata of the rectum, except the epitheliomata of the margin of the anus, have a distinctly

⁴ See Journal of February 24th, p. 171.

¹ Read before the Boston Society for Medical Improvement, March 7, 1898.

glandular character and are to be classed as adenocarcinoma (Orth. Ziegler).

The exact relation between the true adenoma in which the epithelium remains limited by the basement membrane (*tunica propria*) and the adeno-carcinoma, in which the epithelium has broken through that membrane and invaded the tissues outside of it, has never been clearly shown.

We have no facts upon which we can positively base the opinion that these tumors start as true adenomata and later take on the carcinomatous character.

The observation that tumors are sometimes removed which, for the most part, have the histological character of an adenoma, but in which some small area shows a cancerous change, does, however, lend considerable support to the above opinion. It is also to be noticed that the true adenomata which are occasionally found in the rectum are, as a rule, small tumors, while the larger growths of this nature almost always have distinct cancerous characteristics.

In the cancerous degeneration of papillomata of the skin we have an opportunity to study a change closely analogous to that which we have such good reason to believe occurs in these concealed growths of the rectum. At least we may feel that our best working hypothesis is that a certain number of these adenocarcinomata have a stage during which they are benign tumors; and even in some of those which quickly show a carcinomatous character there is probably an appreciable time after the epithelial growth breaks through the *tunica propria* before the lymphatic channels convey the infective cells to any considerable distance from the mother growth.

What now are the physical characteristics by which we may recognize these growths in their early, comparatively innocent stages?

They may start either as pedunculated or flat sessile tumors. The pedunculated forms are readily recognized by the examining finger. They are to be distinguished from the fibrous polyps so common in the rectum first by their situation. The little fibrous polyps are usually found just inside the anus, while these adenomatous polyps have their seat higher up in the rectum. The adenomata, too, as a rule, have a rougher surface than the fibrous tumors. When they have attained a little size, they have the feeling and the form which leads them to be characterized as cauliflower growths.

The sessile forms of adenoma start as little, slightly raised growths on the rectal wall, and presently, as they get larger, develop a slightly nodulated character. They cause so little trouble that the chance of discovering one in its very earliest stage is small. Their usual seat is in the upper part of the rectum, and they often escape the examining finger unless great care is exercised.

The first symptoms by which these adenomatous tumors make their presence known are hemorrhage and a sense of irritation in the rectum. Hemorrhage is sometimes noticed a considerable time before any other symptom appears. In a recent case in which a fully developed cancer of the whole tract of the rectum existed, the first hemorrhage had been noticed five years before the patient came under my observation, and persisted in a moderate amount for three years before medical advice was sought. The doctor who then saw the patient discovered a tumor high up at the top of the rectum which he could barely reach

with his finger. At the time that I saw the patient, two years later, the whole rectum was involved in a hard, nodular, infiltrating mass. This gives some idea of the comparatively slow development of these growths.

The hemorrhages are usually ascribed by the patient to piles; and the attending physician is, not infrequently, too ready to accept this diagnosis without sufficient investigation. If the stools are carefully examined at the time when the hemorrhage first makes itself noticeable, it will often be found that they contain mucus streaked with blood, a condition which should always lead to a strong suspicion of a growth such as we are considering, rather than an ordinary hemorrhoidal condition.

The following cases illustrate rather well the clinical history of these patients and also the method of operation about which I especially wish to speak:

CASE I. E. H. H., forty-six years of age, was first seen at the Massachusetts General Hospital on March 9, 1896. A year previous to this time she had had quite a decided discharge of blood from the rectum. Previous to that she had, for a considerable time, moderate hemorrhages which she thought were due to piles. She had also, on one or two occasions, passed little, soft, spongy masses, one of which was examined and called a polyp. The only sensations that had called her attention to the rectum was a dragging pain, and once an attack of rectal tenesmus.

Examination at the time I saw her showed a little growth with rough surface like a raspberry, situated in the upper part of the rectum and only reached with difficulty by the examining finger. On March 18, 1896, she was etherized and under the relaxation of anesthesia the growth could be reached and hooked down with the forefinger to an easily accessible portion of the rectum. An incision was made over the left side of the sacrum. The posterior edge of the sacrum was removed, and an opening made through the posterior rectal wall. Through this opening the little tumor, as large as an English walnut, was pulled out. It was attached to the anterior wall of the rectum, and a portion of that wall was pulled through the posterior opening with it. The attachment was by a rather broad pedicle but the growth did not seem to penetrate into the mucous membrane about. The pedicle and neighboring portion of the rectal wall was cut out, the wall of the rectum being closed with cat-gut stitches as it was cut. The closure in this way was very satisfactory, so much so, that after the removal of the growth, the posterior opening in the rectum was closely stitched up. The patient made a good recovery.

Examination of the growth showed it to be an adenoma; and Dr. W. F. Whitney, the pathologist who examined it, thought that the epithelium had not broken through the *tunica propria*, consequently that the tumor had not yet taken on a malignant character.

CASE II. I. W. J., a rather delicate man of fifty-nine, was seen by me on February 21, 1897, in consultation with Dr. J. Q. A. McColister of Waltham.

The patient had always been subject to dyspepsia. Two years before this time Mr. J. began to be especially troubled with indigestion, and at about the same time he also began to notice the presence of mucus and occasionally of blood in his stools.

These conditions had continued up to the time I saw him, with a gradual increase in the amount of

mucus and blood, which, however, had never been excessive. The only pain or discomfort that he had suffered was that associated with indigestion and the consequent flatus.

A digital examination revealed a nodular growth high up in the rectum, which did not encircle the bowel but projected from the anterior wall. It seemed about as large as a good-sized prune, but its upper edge could not be reached. It seemed freely movable and was not painful nor did it bleed after the examination.

The diagnosis of adeno-carcinoma was made and its removal advised. Mr. J. was put to bed with a carefully regulated diet; and on March 2, 1897, the operation was done as follows:

With the patient lying on his right side, well over towards his face, an incision was made along the left border of the sacrum down to a point just below the tip of the coccyx. The coccyx and the left part of the sacrum, as high as the third foramen, was cut away with bone forceps. An opening was now made in the posterior wall of the rectum as high up as possible. With considerable traction the growth could be drawn down into the opening, but it could not be brought outside. The rectal wall was a good deal puckered where it gathered itself, as it were, into the base of the tumor.

An attempt was made to cut, bit by bit, through the attachments of the growth, stitching the rectal wall together as we went. This effort had to be abandoned, however, owing to the inaccessibility of the parts. The growth was then cut away with a margin of healthy rectal wall around it. As the tumor was situated on the wall of the rectum covered by peritoneum, we now had an opening into the peritoneal cavity, and, owing to the fact that a considerable portion of the rectal wall had been gathered into the growth, this opening was a large one. Again an effort was made to close this, but it was presently found that an accurate closure was impossible.

The next question was how to prevent the fecal contents of the bowel from escaping into the peritoneal cavity. Fortunately, our preliminary cleansing of the bowel had been very efficient, and up to this time we had not been incommoded by any escape of its contents.

I now took a deep stitch through the rectal wall, just above the opening left by the removal of the growth, and drew it forcibly down to the lower edge of the posterior opening in the bowel and attached it to the skin. In this way the opening in the anterior wall of the bowel was drawn down below the posterior opening so that the feces could escape posteriorly without reaching the opening into the peritoneal cavity. For further security this opening into the peritoneal cavity was snugly packed with iodoform gauze so as to protect it from any leakage of feces in that direction. This packing had the further advantage of checking all oozing from the wounded rectal wall. This arrangement worked as we intended to our complete satisfaction. The bowels moved freely without contamination of our peritoneal wound. At the end of three days the stitch holding the anterior rectal wall was cut, allowing it to spring up and resume its normal position.

The next day, believing the peritoneal cavity to be safely walled off, we began gradually to remove the gauze. This packing was wholly out in three or four

days. The cavity left by its removal was of considerable size; but it was readily accessible, and was freely irrigated at each dressing. It gradually closed down until at the end of about fifty days it had entirely closed and only a slight pucker in the anterior rectal wall marked where it had been.

During this time Mr. J.'s health and strength had improved, so that he was in decidedly better condition than before the operation.

Finally, on May 8, 1897, the posterior opening in the rectum was refreshed and closed by buried catgut stitches, the skin being brought over it with silkworm-gut stitches. Healing was by first intention.

Since this time Mr. J. has remained well, having in the autumn of 1897 resumed an active business life. He was examined in February, 1898, by Dr. E. H. Stevens, of Cambridge, who found the rectal wall smooth without any sign of recurrence of the growth. At this time Mr. J. weighed more than he had ever done in his life.

Both of these cases show the slow rate of development of these tumors, and even in Case II, in which the tumor had a distinctly cancerous character, the growth was clearly circumscribed and had acquired no adhesions to parts about. Whether through the lymphatic system any extension of the disease to distant parts had occurred, it is still too early to say. The manner of removal by a posterior incision in the rectum high above the sphincter was eminently satisfactory in both cases. The closure of the rectal wall by sutures as the growth is cut away (Case II) is the method of choice, and for small and early growths would usually be feasible. In larger growths, especially when seated at a rather distant portion of the rectum, the difficulty of closing the opening must be great, as the stretched rectal wall springs back as it is cut and the opening being irregular its accurate closure is made impossible. Under these circumstances the plan adopted in my case may be found useful.

Another method of treating such a wound would be to reach it from above by a median abdominal incision, and to close it by sutures from the peritoneal side. This procedure was considered in the case reported, but the fear of infection in going directly from a rectal to an abdominal wound led to the adoption of the method used.

Besides the two cases above reported, the writer has had a number of cases of cancer of the rectum in which the Kraske incision has been used for the removal of the growth, from five to seven inches of the bowel having been removed on several occasions. In all of these cases an artificial anus has been established in the upper angle of the wound. The peritoneum has been opened in several of these operations but has been easily closed by stitches and has given no further trouble.

Some of these patients have been quite comfortable for a considerable time afterwards, while in others the newly-formed orifice has been sensitive and has occasioned more or less distress. All that were afterward heard from suffered recurrence of the disease;² but this is not strange, as in all of them the growth was far advanced when it came under observation. In all of them the immediate recovery from the operation was satisfactory.

In none of my cases have I carried out the plan of

² Since this was written a patient on whom a resection of about seven inches of the rectum was done fifteen months ago has reported and been examined. There is, as yet, no sign of recurrence.

making an inguinal colotomy in preparation for an operation upon a rectal cancer, but I recognize the value of this diversion of the bowel contents when an extensive resection of the rectum is to be attempted, especially when it is desired to preserve the sphincter and to make an end-to-end suture after the removal of the growth. I have, on one occasion, resected a portion of the sigmoid flexure for cancer in a patient upon whom I had done a previous colotomy. The artificial opening above certainly relieved our stitches of all strain during the healing process and removed that source of danger and anxiety.

Since this paper was read the writer has had a third case of rectal polyp (adeno-carcinoma), in which the operation was carried out on the lines above described. The growth, which was as large as a small fist, and grew from the anterior rectal wall, was removed through a posterior incision. Before cutting off the growth the pedicle, which was a broad one, was sewed through and through with a cobbler's stitch, which entirely controlled the hemorrhage, at the same time holding the rectal wound closely approximated. The patient, a very anemic middle-aged man, has done extremely well; and it is now ten days since the operation.

Clinical Department.

HEMATOMA OF THE OVARY.¹

BY W. H. BAKER, M.D., BOSTON.

MRS. C. L. S. was referred to me by Dr. D. C. Rose, of Stoughton, May, 1897. Age twenty-nine years. Had been married five years. No children. Complained of more or less pain for eleven years, which had been so severe for five years that she had been unable to stand or walk more than three or four blocks, on account of the intense backache induced. Suffers more pain in the right side than in the left. Nothing unusual in regard to the menstrual periods. In addition to pain she has considered her health very poor on account of some digestive trouble for which she is under the care of Dr. Gannett. Has suffered from dysentery several times.

On examination a mass was felt, about the size of a goose-egg, in the left portion of the pelvis, which crowded the uterus well over to the right side. Mass also extended behind the uterus. This was thought to be either a distended tube or cystic ovary. From its firm attachment to the walls of the pelvis it was thought to be in all probability a dermoid or hematoma of the ovary, or a pyosalpinx.

February 26, 1898, she consulted me again, and was suffering so much that she was quite ready to entertain the idea of operative interference. The operation revealed a hematoma of the left ovary, which burst on freeing it from its adhesions. The sac, ovary and tube of that side were removed. From the right ovary, which was also adherent with a portion of the tube, was found a hematoma about the size of a walnut, which also ruptured in bringing it to the surface. As a considerable portion of the ovary looked healthy, and as the tube of that side was pervious, I dissected out the sac of the hematoma of this ovary, and then sewing up the ovary with

interrupted sutures, it was left. Precaution, however, was taken to stitch the ovary to the upper portion of the right side of the uterus, to insure against forming adhesions again over the denuded portion of the right side of Douglas's fossa, the site of its former adhesions. Although the denuded surface at the bottom of the pelvis was large, and from it there was a great deal of oozing, still this was controlled in a short time by hot sponges, and the abdomen was closed. The patient is making a good recovery.

The case seemed of interest to report on account of the ability to remove a portion of one ovary and leave a sufficient amount of normal ovarian structure for her future usefulness, which, in a person of twenty-nine years of age, is an important consideration. It also is of interest as proving what I have observed in all similar cases that have come within my experience, as follows:

- (1) That hematoma of the ovary almost always affects both ovaries.
- (2) That it is invariably accompanied by dense adhesions to the surrounding parts.
- (3) On account of the friable condition of the ovarian structure in these cases the sac invariably bursts in its removal.
- (4) That the discharge of the contents of the sac, if ordinary precautions are taken in regard to cleansing, either by sponges or washings, does not complicate the recovery of the patient.

Reports of Societies.

BOSTON SOCIETY FOR MEDICAL IMPROVEMENT.

JAMES G. MUMFORD, M.D., SECRETARY.

REGULAR Meeting, Monday, March 7, 1898, the President, DR. R. H. FITZ, in the chair.

DR. W. H. BAKER showed a

SPECIMEN OF HEMATOMA OF OVARY.¹

DR. RICHARDSON: I recall two cases of hemorrhage of the ovary, both of the right ovary; and in one case the ovary ruptured and filled the abdomen with blood, so that it seemed to us it was an extra-uterine pregnancy, but careful examination failed to show any evidence of pregnancy. This was a very grave case, but the patient recovered. In another case we found the ovary much distended with blood. These cases interested me very much at the time, and I supposed, of course, from there being such an extensive hemorrhage, especially in the first case, that it must be a ruptured extra-uterine pregnancy. Dr. Whitney was not able to find the evidence of pregnancy in either case. I am glad to hear what Dr. Baker said about the conservative treatment of the ovary. I have removed one or two simple tumors from the ovary, stitched the ovary up with interrupted suture; and I don't see why the patient should not be just as well as ever.

DR. CABOT: I should like to ask Dr. Baker about fixation of the ovary to the uterus, whether he has tried that in cases he has followed subsequently.

DR. BAKER: I do not recall in my own experience cases where pregnancies have followed the stitching up of the ovary. I must admit that I have not followed

¹ Reported before the Boston Society for Medical Improvement, March 7, 1898.

¹ See page 546 of the Journal.

the cases sufficiently well to know. I am sure that where adhesions are broken up freely in the bottom of the pelvis there is great danger of a recurrence of these adhesions if the ovary is left without such stitching. I have many times found a distended tube, and removed the distal half, stitching the mucous and serous membranes together and thus leaving a fairly good tube. I have seen many reported cases where this has been done and pregnancy following had gone on to childbirth. I have also sometimes removed a small cyst the size of a peach from one ovary and left perhaps two-thirds of the ovary which seemed healthy. I think a little careful dissection will oftentimes save a part of an ovary which is a matter of considerable importance aside from the hope of child-bearing, for we may thus prevent in a young woman the atrophy of the uterus and vagina which sometimes will follow removal of both ovaries.

Dr. A. T. Cabot said that he was extremely interested in the conservative surgery of the ovary, and that he recalled a case in which, after freeing a prolapsed and adherent ovary, he had secured it by a catgut stitch to the peritoneum at the brim of the pelvis, thus preventing its slipping back into its faulty position.

In a recent case, too, he had dissected off of an ovary a cyst as large as a pullet's egg. He united the ovarian wound with catgut stitches, and the patient made a good recovery.

Dr. A. T. Cabot read a paper entitled

SOME OBSERVATIONS UPON MALIGNANT ADENOMA OF THE RECTUM, AND ITS TREATMENT BY KRASKE'S OPERATION.²

Dr. Cabot: About the pathology I would ask Dr. Fitz to state if my idea is correct, that except the epithelioma there is no cancer of the rectum except an adeno-carcinoma recognized: my impression is that that has this localized character, and therefore is of slow growth. Although the cases we see are probably older than the patient is aware of, if we could get our patients earlier we should have the tumors in the stage when they are still localized and could be removed thoroughly. I don't find any other carcinoma.

Dr. R. H. Fitz: One of the terms for the tumors under consideration which is very convenient has not been used. It is based upon the characteristics of the cells, especially upon their cylindrical shape. Among these cylindrical-celled tumors there are those which pursue a prolonged course and produce but little constitutional disturbance and there are others which grow with considerable rapidity and prove fatal. In general the distinction holds good with reference to such tumors of the rectum that applies to growths of the uterus. There are new formations in the womb which are not so much circumscribed tumors as diffused thickenings of the mucous membrane. They are designated hyperplastic endometritis when there is simply an extensive thickening of the uterine mucous membrane which on microscopic examination shows prolonged pouches lined with cylindrical epithelium. The growth is essentially a hyperplasia of structures which are normal to the part. With these growths will be associated a chronic, watery or hemorrhagic discharge from the vagina continuing perhaps a number of years. In the course of time, if no radical treatment is adopted, the person gradually becomes anemic and eventually may die from secondary

fatty degenerations in consequence of the profound anemia. In such cases the uterus may be found so enlarged that its cavity easily contains the fist and the wall may be trabeculated from extension of the epithelial growth between the bundles of muscle which compose the uterine wall, but there is no extension of the disease to any other part of the body. The distinction between the early hyperplastic endometritis and the later malignant adenoma or cylindrical-celled cancer of the uterus is based essentially upon the absence or presence of the adenoid growth within the uterine wall. The same holds true with reference to the rectum, in which growths occur of the nature of a diffused hyperplasia of the mucous membrane. Dr. Homans, many years ago, reported such a case which he treated by reaming, essentially a curetting, although in those days, if I remember aright, the curette was practically unknown. In such cases there is not so much a circumscribed tumor as a diffused thickening of the mucous membrane, and the elongated cylindrical-celled pouches which represent a glandular hyperplasia while they remain limited to the mucous membrane and do not extend into the submucous tissue are the characteristic of the adenoma. This condition, adenoma of the rectum, is essentially a hyperplastic proctitis analogous to the above mentioned hyperplastic endometritis, which commonly is not spoken of as adenoma of the uterus. These are the growths which, when removed thoroughly, are not likely to recur. On the contrary, there are growths which simulate very closely in structure these adenomata, but which do extend into the submucous tissue irregularly and in a more or less atypical form. These may form circumscribed tumors perhaps of considerable extent, as in the case mentioned by Dr. Richardson, with or without secondary growths elsewhere, especially in the liver. This is the form of growth to which the term malignant adenoma often is applied, and for which adeno-carcinoma and cylindrical-celled cancer are usually synonyms.

I quite agree with Dr. Cabot that the cylindrical-celled adenoma if removed early gives considerable promise of not returning, but if left for a long time without treatment is likely to become extended into the deeper structures and eventually into more remote parts having become transformed into a malignant adenoma or cancer. To repeat, I do not think there is any practical distinction between a malignant adenoma, an adeno-carcinoma and a carcinoma, nor between a simple adenoma of the rectum and a hyperplastic proctitis. Clinical experience leads very directly to the conclusion that the former may be the direct outcome of the latter.

Dr. A. Coolidge, Jr., read a paper on

CHANGES IN THE TURBINATE BONES IN CONNECTION WITH DEFORMITIES OF THE SEPTUM.³

Dr. Langmaid: Dr. Coolidge has given us such an exhaustive account, and so plain a one, that it is very difficult to add anything to it. Of course, he had spoken of something which may present itself to us many times a day. We always have to come to a decision, whether there is a bent septum, what this large turbinate means, etc., and what shall be done. I am willing to accept Dr. Coolidge's explanation and also his views with regard to treatment. I always regret to have a patient come to me with a bent sep-

² See page 543 of the Journal.

³ See page 547 of the Journal.

tum, especially the cartilaginous part, and evidence that the enlarged turbinate which belongs to the concave side has been in some way destroyed either by snare or by actual cautery, for I find in those cases exactly what Dr. Coolidge has described, namely, an appearance like an atrophic condition. In one case I remember there was no trace of the lower turbinate. The case had come from a distant city. The man was complaining very much of a dry condition of the nose and throat and when I looked into his nose I supposed it was a case of atrophic catarrh. It proved, however, to be one in which the damage had been done by operation. His description of the amount of burning and snaring which he had suffered was pitiable and I was obliged to dismiss him since there was very little to be done except to give such directions as we do in atrophic catarrh, insertion of pledgets of cotton, use of oily spray, etc.

With regard to the function of the turbinates, Dr. Coolidge has said that the theory has been that the changes in size have been due to the necessity for the passage of air. I will say that I have considered the function of the turbinates to be conservative to a great degree and have acted upon that principle very largely in my practice. I remember when I was quite young wondering why it was in a summer's day when I drove through a cold meadow my nose immediately became stopped, and when I emerged from the meadow into the warm air my nose immediately opened; and that was a problem until Dr. H. J. Bigelow drew attention to the real structure of the turbinates and their physiology, and showed that they were erectile bodies. The function of the turbinates is to protect the nose and respiratory tract from cold or heat which would irritate and dry the mucous membrane. The turbinates respond instantly to the stimulus of harmful external conditions and thorough inhibition of vaso-motor agencies, congestion (swelling) results which is for a time protective, in so far as it limits the amount of inspired cold, or very dry air. The vicious conditions being removed, the inhibitive stimulus to the vaso-motor system is no longer active and the congestion and swelling subside. A normal, patent condition of the nostril ensues. If for any reason the external or internal cause for partial occlusion of the nostril persists, just so long the turbinates will remain congested.

I quite agree with Dr. Coolidge, and I believe that the reason for the enlarged turbinate on the concave side is to regulate the amount of air which passes through there. The point I would make, and which perhaps Dr. Coolidge would accept, is, that as he does not agree that the difference in size of the turbinates is owing to the passage of air, perhaps he will accept the fact that the impulse of the physiological change is a reflex one, generally external, from the atmosphere. It may be that the turbinates become enlarged from some constitutional condition, but where the large turbinate is found on the concave side it seems to me that the enlargement is owing to repeated reflex conditions, a resistance to some harmful external condition or cause. I have found in the cases where there was a bend of the cartilaginous septum, that where that could be reduced or even loosened up so that a larger amount of air could be gotten into the narrow nostril, this enlarged turbinate has of itself decreased in size, which would, it seems to me, as far as it goes, rather prove Dr. Coolidge's theory. With

regard to the congenital closure of the nares, where either one choana or the other is impervious, I cannot say that the same condition would not hold, provided the theory of reflex disturbance is accepted because the function is there. Nature is all ready to perform the function and the exciting cause for reflex action happening, immediately or very soon this change in the turbinate takes place. I quite agree with Dr. Coolidge, then, that this enlargement of the turbinate on the concave side is not to be considered pathological, and other things being equal the turbinate is not to be proceeded against in a summary manner.

DR. FARLOW: I am very glad to hear this paper of Dr. Coolidge. When there seems to be insufficient patency of the nose, it is the conspicuous, easily seen inferior turbinate which generally attracts attention, and, if this is larger than usual, means are taken to bring about a reduction in its size, without a thought as to whether this enlargement may not have a physiological base.

The swelling of a turbinate can be brought about by contact with cold or moist air, dust or any irritant, and we can often see it diminish in size when touched with a probe, phenomena which seem to me to indicate the reflex nature of the process.

It is not an easy matter, in many instances, to determine by inspection of the nostrils whether they are sufficiently large to allow proper nasal respiration, especially as in the daytime, when the examination is generally made, the nose is perhaps much less likely to cause the feeling of being too narrow than at night.

I quite agree with the statement that a physiological swelling may go beyond proper limits and require treatment to keep it from being a source of annoyance.

DR. GOODALE: I want to say, in regard to Dr. Coolidge's paper, that it seems to me to be of particular value from the fact that it compels us to alter very distinctly some previous conceptions in regard to the causes of pathological enlargement of the intra-nasal structures. The theory that the respiratory alterations of intra-nasal air pressure were of influence in bringing this about, is one that has been entertained by some observers, particularly in view of the conditions we know to be present in adenoid disease in which these alterations are less than usual and we see the conditions in the inside of the nose to correspond, that is to say, we see in adenoid disease, generally, at least, a smaller size of the turbinates than we do if there is free nasal respiration. On the basis of the old theory, that of course would be explained from the fact that the air passes less freely than usual through the nose or is entirely prevented from passing and as a result the mucous membrane does not receive the stimulus it should have in bringing about proper nutrition. These two cases Dr. Coolidge has spoken of show that in certain instances such a respiratory influence is not necessary to alter the size of the intra-nasal structures and the ground seems to have been taken from under our feet in regard to these cases. In seeking for an explanation it is most natural to look to one from some nervous influence, since we know that slight nervous disturbances alter very considerably the size of the erectile tissue from derangements in other organs. For instance, on excitement of the sexual centres, the nasal structures can undergo very rapid change in size and if the stimulus be often enough repeated, the change may become permanent.

It seems to me essential to investigate at least whether a bend of the septum producing a convexity of one side may not in some reflex way, perhaps from mutual interdependence of the turbinates of one side on those of the other, bring about an enlargement of the turbinates on the concave side of the septum. It would seem at least if we are to be deprived of the theory of respiratory influence we must look for it in some nervous channel. I think the paper is extremely valuable because it has made it necessary for us to alter our conception of the condition present, but we have not at present any definite substitute to offer for the old theory.

DR. COOLIDGE: The delicate physiological balance of the nose is well known. I want to draw attention to the delicate anatomical balance, the change in the size of the turbinates themselves even involving the ethmoid cells as is seen in one of those skulls which are being passed around. Dr. Farlow spoke of judging of the patency of the nostrils by having patients breathe on a mirror. But we often find in a practically normal nose that at one time one nostril, and at another time the other one, is admitting most of the air. I did not mean to take up the long subject of operations on the nasal septum. I merely mentioned that most of these operations involve problems in front of the nasal cavities proper. It seems to me that one reason why so little harm is done by many of the applications to the turbinated bodies is on account of the great power of adaptation to different circumstances which these bodies possess. A turbinate can enlarge to such an extent that it will not be crippled by taking a little piece of from it or by putting some caustic on it. I do not question the great benefit often obtained from chromic acid, for instance, but I do not believe that the result is due simply to the removal of tissue.

Dr. Farlow has called attention to the over enlargement of the turbinates opposite a concavity, so that less than the normal amount of air can pass. I have noticed the same thing myself. I have tried to explain it by supposing that as the opposite side is obstructed by the convexity of the septum, the concave side becomes equally narrow in order to keep the air-carrying capacity of the two passages nearly equal. I am aware that when one nostril is occluded by a bend of the cartilaginous septum opposite the nasal process of the maxillary bone the other or open nasal passage does not tend to close, but often furnishes sufficient space for comfortable nasal respiration.

Where there has been nasal obstruction due to adenoid vegetations the turbinates are not small. The nasal cavities in these cases are often narrow and the turbinates consequently flattened.

To go back to the question of the cause of the adjustment of the turbinates to the septum it seems to me to be perfectly proper to doubt one explanation even if we have no substitute to offer. Many phenomena of growth in the body cannot be explained by any mechanical process. Even to say that it is a trophic change regulated by the nervous system does not explain much. Septa are commonly nearly perpendicular in early childhood. They become deformed gradually, and the turbinates change their shape to correspond, or possibly they all change together from some common cause, for the causes of the irregularities of septa deserve a better explanation than they have commonly received.

Recent Literature.

A Practical Text-book of the Diseases of Women. By ARTHUR H. N. LEWERS, M.D. Lond., Obstetric Physician to the London Hospital, etc. Fifth edition, 526 pp., with 174 illustrations, four colored plates and 71 illustrative cases. Philadelphia: P. Blakiston, Son & Co. 1897.

This is the fifth edition, which brings the work to its ten thousandth copy; and the most casual inspection of the book will at once show the reason for its having had a sale which is large for any book, phenomenally large for a technical work, and still more extreme for one devoted to a specialty. In the chapter devoted to the major operations one notes an absence of the more advanced technique which American operators now believe to be so essential to success. In the chapters devoted to the minor operations of the subject, the author's free use of the uterine sound, his routine use of the catheter, and his readiness to use tents in dilatation of the cervix, strike one as behind the times, but these are the only criticisms to be made upon the book. Its sensible, practical way of approaching the subject, its great attention to practical details, its thoroughness and clearness must make it of great value to any one, and of exceptional value to the inexperienced. It is a pleasure to review so praiseworthy a volume.

The Medical Annual and Practitioner's Index. A Work of Reference for Medical Practitioners. Sixteenth year. Bristol: John Wright & Co. 1898.

Those who are familiar with this handy annual and index will have learned to appreciate it. It is smaller than some of the more recent year-books, but its purpose is judiciously outlined and well executed.

The publishers have in contemplation an index covering the last twelve issues.

A System of Practical Medicine by American Authors. Edited by ALFRED LEE LOOMIS, M.D., LL.D., and WILLIAM GILMAN THOMPSON, M.D. Volume III. Illustrated. New York and Philadelphia: Lea Brothers & Co. 1898.

This volume contains articles on Diseases of the Alimentary Canal; Diseases of the Peritoneum; Diseases of the Liver and Gall-Bladder; Diseases of the Spleen; Diseases of the Pancreas; Diseases of the Thyroid Gland; Chronic Metal-Poisoning; Alcoholism; Morphinism; Infectious Diseases Common to Man and Animals—Glanders, Anthrax, Actinomycosis; Purpura; Beri-Beri; Hemophilia; Diabetes; Insolation.

The volumes of this System are large royal octavos, and this one has more than 900 pages, and covers a great variety of subjects. Many of the individual chapters are excellent; notably those on Diseases of the Mouth, Tongue, Tonsils, Pharynx and Salivary Glands, by Dr. R. C. Cabot; on Trichinosis by Dr. George Dock; on Food-Poisoning, by Dr. V. C. Vaughan; on Diseases of the Liver and Gall-Bladder, by Dr. J. E. Graham; on Diseases of the Thyroid Gland, by Dr. F. P. Kinnicutt.

Some of the illustrations are very good. The paper and printing are all that could be asked for.

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MEDICAL MEETINGS.

THIS is the season of medical meetings. All over the country men are coming together who are interested in some one line of medical work, to exchange ideas, to express their own personal opinions and to listen with more or less deference to the opinions of others. The situation is always an interesting one, and offers many points for psychological speculation.

In general it would appear that the medical meeting is an institution which shows a marked tendency to increase. No sooner do we learn with a sense of inward gratification that this or that society has disbanded forever, than we hear that two others have sprung up in its place, representing perhaps opposing factions, which thereafter go on their own ways, each no doubt better because of its new rivalry. In this way medical societies, like medical journals, are forever multiplying, regardless of their real value to medical progress. Coincident with this actual increase is a growing tendency on the part of the members of such societies to bewail their multiplication. One hears the reiterated statements from every source, "There are too many societies"; "I have absolutely given up going to any of them"; and occasionally the more candid remark, "I only go when I read a paper." Still people do go, a few certainly to every meeting; and the societies drag out their existence year after year, with waning or waxing interest, as the case may be.

Evidently there is much food for reflection in this whole matter. In spite of our protests, most of us find ourselves, occasionally at least, at medical meetings, and regard it as no great disparagement. The reasons for this are not far to seek: some of us, a few, go to learn; some of us, younger men, go to be seen; some of us go to teach. No doubt each of these motives is operative. Let us take them up in order.

First, about learning. We are ready at once to admit that this is possible to a limited degree. From

hearing another speak we, no doubt, get some ideas, but they are usually too vague to be of practical value. It is, however, not often possible, certainly for most men, to really learn from a paper read by a specialist. Since every paper to be of value must, in these days, be the result of special work, it too frequently happens that the auditor, dazed perhaps by the reader's learning, is chagrined by his own failure of comprehension. This is inevitable, and is sounding the death-knell of the general medical meeting as a place from which information is to be gleaned. Hence the wretched attendance, and the formation of special societies.

As to the second point, that some of us go to be seen. This is a perfectly legitimate motive. The physician has a peculiarly poor opportunity to bring himself before the public eye. He is even more limited in this regard than the lawyer, who is allowed to parade his name in large letters in conspicuous places, and even indicate the special character of his calling. The young medical practitioner retires into obscurity as soon as he begins his life-work, unless by some means he can bring himself to the notice of his elders. Therefore, among other things, he goes to medical meetings; he listens while his superiors in years read papers descriptive of their wide experience; he occasionally musters up courage to say a few words himself, thereby increasing his self-confidence and attracting to himself his rightful share of attention. Then, finally, he is himself asked to read a paper, which flatters him; he prepares it carefully, and with all modern means of research, and finds too often, when the evening comes, an array of vacant chairs which are totally unresponsive. This is a certain disappointment; but he learns that the older men, to whom he so patiently listened, are quite satiated with medical meetings; that they have no interest in his communication; and that the younger generation find him not yet quite experienced enough to meet their crying needs.

The really enthusiastic attendants of medical meetings are undoubtedly the third class, or those who go to teach, and incidentally to let their colleagues know of the activity of their work or practice. These are the readers of papers. They are the men who are brilliant in research or successful in practice. They are full of interest in their work, and find it to the advantage of other people, as well as to their own, to make public their accomplishments. They are listened to with varying degrees of interest and respect, depending upon many subtle facts, some of which we have already indicated.

When we transfer our attention from the local meeting to the national one, we are often a little surprised to find that human nature is the same in other parts of the country as in our own small community. We somehow expect something a little different there; we journey many miles to a distant city, with the feeling that there certainly every one will be eager to listen to our original communication. But we are always disappointed. Every one, just as at home, is exceed-

ingly interested in himself and his own addition to medical progress; but he finds himself curiously uninterested in others' communications, and what is more galling, but no less natural, he finds every one else curiously uninterested in his. It is the same everlasting struggle for recognition, which rarely comes spontaneously. It is a perfectly human attribute, but its manifestations are often unpleasant.

This is, perhaps, too bare a statement of what seem to us the facts; but an analysis of the situation, and even a superficial observation, must lead us to some such opinion. Yet medical societies continue to flourish, and undoubtedly will do so more and more. Most of us remember such gatherings with the very greatest pleasure, but the pleasure is a social rather than an educational one. Note, for example, in passing, the stimulation to attendance occasioned by the most meagre refreshments. It is not that we are hungry, but simply that a sandwich forms a bond of union between men that abstract reason is totally incapable of accomplishing. In other words, we are gregarious beings. We enjoy meeting our fellow-workers, but we wish to meet them in some other way than through the medium of a medical communication. Of this there cannot be the slightest doubt.

Still medical meetings are valuable, and so are medical papers read at such meetings; only we must recognize sooner or later that a medical meeting is a complex matter, in which human nature appears in some of its most entertaining guises. The sooner we realize this fact, the sooner shall we come to get the very most out of such assemblies.

RESULTS OF PROLONGED INSOMNIA.

PREYER was the first to propound the toxic theory of sleep, according to which certain waste products during an active condition of body and mind are generated, which accumulate in the blood, cause the sensation of fatigue, and "intoxicate the superior nervous centres to the point of inaction which is the equivalent of sleep." There is general recognition that this theory does not altogether explain that common and necessary phenomena of the animal kingdom—there must be other factors, still imperfectly understood.

There are very few observations on record concerning the results of prolonged insomnia, both as to the psychical troubles and palpable alterations of the central nervous system engendered. An Italian physiologist, Agostini, has noted two striking instances in the human subject where, as a result of long want of sleep, temporary psychical disturbances were observed.¹

The first patient was a railroad engineer, a robust man aged forty-five years, of no hereditary or personal neuropathic antecedents, and not addicted to alcohol; who, by reason of the sickness of his fireman, had the

sole charge of his engine for six successive days and nights. During the last night of his service, he left his engine at a station and proceeded to utter invectives against the people gathered there and to commit disorderly acts. He was taken to an asylum, where his condition was found to be one of mental confusion with excitement and hallucinations. After a sleep of fifteen hours without awaking, he was completely restored, with no remembrance of what had taken place during the brief period of his delirium.

The next case was that of a young woman, a robust chambermaid, who after passing nine days and nights by the bedside of her sick mistress, was taken all at once with psychical troubles on the morning of the tenth day. She imagined that she had been the victim of gross outrages, did senseless things, muttered incoherent expressions, and passed suddenly from profound gloom to excessive gayety. After a long sleep she woke in a normal mental state, with but a confused and partial remembrance of what had passed. She resumed her place by the bed of her sick mistress, and after a night of watching, was again taken with an attack of mental confusion with delirium. She completely recovered after several days of complete repose.

Similar cases, in which the morbid symptoms were imputable to the insomnia alone, to the exclusion of every other cause of exhaustion, are reported by Hammond, Renandin, Meynert, Maury and others.

Agostini regards this kind of insanity as "acute mental confusion." He proposes to designate it as "transitory delirium of agrypnia" (the Greek word meaning *insomnia*), and would class it in the group of acute psychoses by exhaustion or intoxication. We have, in fact, to do with states of delirium, which appear suddenly and are characterized by mental confusion, with hallucinations, incoherence of actions, varied emotional manifestations and consecutive amnesia. The condition is a sort of half-dream, of ephemeral duration and favorable prognosis, lasting from several hours to several days.

In order to study the histological alterations in the cerebra under the influence of prolonged deprivation of sleep, Agostini instituted some experiments on a couple of dogs which were placed under conditions in which sleep was impossible. One dog was confined in a suspended metallic cage furnished with bells which at each movement of the animal made a low din in his ears. There was also a relay of attendants to watch the dog night and day to prevent him from lying down and sleeping, and to give him food and drink. This experiment was one of exquisite cruelty, and the same may be said of the succeeding experiment.

The first dog, a robust animal weighing eight kilogrammes, on the seventeenth day of the experiment fell into a state of extreme prostration, and became insensible to powerful excitations. Wishing to avoid all alteration of the nerve centres attributable to the pre-agonic period, Agostini trephined the cranium while the animal was still alive, and removed divers parts of

¹ Riv. Sperim. di freniatria e di med. leg., xxiv, 1; Semaine Méd., May 14, 1896.

the cerebrum by excision. Only when the membranes were incised were there observed certain manifestations of pain. To the naked eye the cerebrum and its membranes presented nothing abnormal. The histological examination, made after the method of Nissl, showed the presence of characteristic cell lesions. These alterations, which were found throughout the entire extent of the cortical substance, but especially in the frontal lobes, consisted in a disaggregation, in a fragmentation more or less fine, of the chromatic substance, beginning for the most part by the perinuclear zone and extending thence to the entire cell. Sometimes the cytoplasm presented the alterations characteristic of vacuolar atrophy. These lesions were in the main identical with those which Daddi had noted in his experiments on animals which were subjected to excessive muscular fatigue as well as to prolonged insomnia; they also resembled the cell changes described in poisoning by arsenic, lead, alcohol, etc.

In the second dog, younger and less robust, which died of exhaustion on the twelfth day of the experimentation, the histological lesions of the cerebral cells were the same.

The similarity of the alterations found in these two dogs to those which have been observed in animals poisoned by divers toxic substances leads the Italian experimenter to conclude that the delirium of insomnia is due to an auto-intoxication of the cellular elements of the nerve centres, due to excessive disintegration of these centres. Generalizing still further, Agostini states the belief that the mental affections belonging to the group of psychoses properly so called, such as mania, lypemania, and the divers kinds of mental confusion, considered heretofore as essential forms, *sine materia*, are often of autotoxic origin, that is, the result of lesions of the nerve cells produced by the action of poisons generated in the organism.

SANITARY PROBLEMS OF A CUBAN INVASION.

A MEETING of American and Cuban physicians who have enlisted in the Red Cross service was recently held at the Red Cross Hospital, on West 100th Street, to discuss the sanitary problems presented by an invasion of Cuba. Dr. E. Nunez, at one time director of the Hospital of Our Mother in Havana, presided; Dr. Juan de Sollossa, formerly a surgeon in the Spanish army, acted as Spanish secretary, and Dr. F. B. Carpenter was the English secretary.

From statements by Drs. Francis Revera, F. Marill, Julius Carbonell and C. R. Gill, it appeared that in the Cuban war 75 per cent. of the Spanish army suffered from endemic diseases, 50 per cent. from yellow fever (about equally divided between mild and serious cases), and 25 per cent. from malarial fever. Dr. Sollossa said that before the war 30 per cent. of all foreigners suffered from these diseases, and the mortality was about 10 per cent. During the war the percentage of deaths in the army from disease

alone was more than 25 per cent. With improved hygienic measures this death-rate could be considerably reduced. During the first three months of the year there was little yellow fever; in April, May, June and July more cases occurred, though they were not numerous; and from the end of August to the middle of November the disease was most prevalent and severe. Taking proper precautions, those who had good health during the early months could usually escape an attack during the unhealthy months. Malarial fever was most prevalent during the rainy season.

Dr. A. M. Lesser, Surgeon-in-chief of the American Red Cross Society, said that diseases were most prevalent near the coast and in large cities. Six to twelve miles from the coast, at an altitude of one thousand feet, all persons were comparatively immune. The mountains were easy of access and could be used for hospitals, as far as the conditions of war permitted. In the quartering of soldiers it was especially advisable to avoid the cities, and if they were encamped in tents it was essential that the tents should be impervious to the heavy dews. It was to be remembered that any person suffering from yellow fever or severe malarial fever would be unfit for duty for at least six or seven weeks, so that unless the most careful sanitary precautions were taken, only a portion of the army could be counted on for regular duty, the rest being under hospital treatment. As regards the relative healthfulness of Cuba and Tampa and Key West, all the physicians present agreed that the climate of Florida was worse than that of the higher portions of Cuba, and that it would be better to keep the ill and wounded on high ground in Cuba than to remove them to Florida, thus subjecting them to the dangers of seasickness in addition to less salubrious conditions on their arrival.

MEDICAL NOTES.

MEASLES is reported to be prevalent among the soldiers in camp at Hempstead, San Francisco and elsewhere.

"THE JOURNAL OF TROPICAL MEDICINE" is the name of a new monthly journal to be published in London by John Bale, Sons & Danielsson, under the editorial management of Mr. James Cantlie and Dr. W. J. Simpson.

PLAGUE IN CHINA. — There is unfortunately only too much reason to suppose that plague is becoming increasingly prevalent in some of the coast cities of China. During the twenty-four hours up to noon, March 31st, 11 new cases and 10 deaths were reported in Hong Kong, making the total since January 1st (ninety days) 224 cases and 195 deaths. Plague is also said to prevail in Canton to the extent of about 100 cases a week, and to be increasing in Macao.

SIR WILLIAM STOKES HONORED. — An address and some valuable plate were presented to Sir Wil-

William Stokes on May 7th, on the occasion of the completion of the twenty-fifth year of his professorship at the College of Surgeons, Dublin. In the evening Sir William Stokes was entertained at dinner.

RÖNTGEN RECEIVES ANOTHER PRIZE—The Philosophical Faculty of the University of Göttingen has awarded the Otto Vahlbruch prize for the greatest advance in science during the past two years to Professor Röntgen, of Würzburg. This prize was founded in 1896 and is of the value of 9,200 marks.

HEPATIC ABSCESS CAUSED BY ASCARIS LUMBRICOIDES.—In the *Deutsche Medicinische Wochenschrift* of May 19th Dr. Bruno Leick, assistant physician in the Greifswald University Clinic, reports a case in which a hepatic abscess was found to contain an ascaris lumbricoides. The patient, thirty-five years of age, was admitted to the hospital in June, 1897. She was greatly emaciated; her temperature varying from normal to 101.4°. Her abdomen contained a tumor larger than a child's head, which extended from the navel to the ensiform process, and by its elasticity, taken in connection with the patient's enfeebled and hectic condition, suggested a suppurating hydatid. Laparotomy on July 7th disclosed a small encapsulated abscess in front of the liver, and a puncture which was made in its base passed through three-quarters of an inch of liver substance into an abscess cavity containing creamy fetid pus. On July 10th, whilst the dressings were being changed, a living ascaris was found in the abscess. The patient made a good recovery.

A NATIONAL SOCIETY TO STUDY EPILEPSY.—At a meeting held at the Academy of Medicine in New York City on the 24th of May, representatives from eight States were present to organize a "National Society for the Study of Epilepsy and the Care and Treatment of Epileptics." Speeches favoring the formation of such a society were made by Drs. Abram Jacobi, Ira Van Gieson, C. A. Herter, Frederick Peterson, E. C. Fisher and William P. Spratling, of New York; Dr. H. C. Rutter, of Ohio; Dr. William N. Bullard, of Massachusetts; and Dr. B. D. Evans, of New Jersey. The following officers were elected: President, Hon. William Pryor Letchworth, LL.D., New York; First Vice-President, Dr. Frederick Peterson, New York; Second Vice-President, Prof. William Osler, M.D., Maryland; Secretary, Dr. William P. Spratling, New York; Treasurer, Dr. H. C. Rutter, Ohio. The society organized with forty-four members. Application for membership should be addressed to the Secretary at Craig Colony, Sonyea, N. Y.

INHUMAN BULLETS.—As noted by our Berlin correspondent in a recent issue, Professor Bruns, of Tübingen, has been making experiments with the "Dum Dum bullet," and has found that it possesses cruelly explosive effects. Professor Bruns called upon the German Government to endeavor to bring about an agreement among the Powers that such bullets should be forbidden. As was noted in our issue of March 31st, the question of the special ef-

fects produced by the Dum Dum bullet, was brought up a short time ago in the House of Commons, and the reply of the government was to the effect that the reports as to its mutilating properties were erroneous, and that its effects were not those of an explosive bullet. In view, however, of Professor Bruns's accusations, it would be of interest to learn from the medical officers engaged in the war how far his statements can be actually disproved. Although theoretically the Dum Dum is not an "explosive bullet," are not the effects of a bullet that "spreads out like a mushroom" when it hits the body, as bad as are those of an "explosive bullet," and was it not with the intention of producing severer and more disabling wounds that the British soldiers in India filed off the nickel tips of their bullets? Professor Bruns will render it necessary for the British Government to explain the difference between tweedledum and tweedledee. It would seem justifiable to use a bullet for the purpose of stopping a charge of savages at close range, which would be excluded in battles between the armies of civilized nations.

BOSTON AND NEW ENGLAND.

ACUTE INFECTIOUS DISEASES IN BOSTON.—During the week ending at noon, June 8, 1898, there were reported to the Board of Health, of Boston, the following numbers of cases of acute infectious disease: diphtheria 15, scarlet fever 15, measles 58, typhoid fever 15.

THE NURSES' HOME AT DANVERS.—The new Nurses' Home Building at the Danvers Lunatic Hospital will be formally opened this evening.

MASSACHUSETTS INSTITUTE OF TECHNOLOGY.—The graduation exercises were held in Huntington Hall, the Rogers Building, 491 Boylston Street, on Tuesday, June 7, 1898, at half-past two o'clock.

CONTRACT MEDICAL PRACTICE.—The Connecticut State Medical Society, at the annual meeting recently held, passed a resolution discountenancing the making of contracts for medical service at a fixed annual rate with lodges, mutual-benefit societies and medical clubs.

THE CALEB FISKE PRIZE.—At the annual meeting of the Rhode Island Medical Society, held June 2d, the trustees of the Caleb Fiske Fund reported that they had awarded a prize of three hundred and fifty dollars to Dr. David I. Wolfstein, of Cincinnati, for his essay on "The Neuron Theory as related to Brain and Nerve Disease." For the next year the trustees offer a prize of two hundred and fifty dollars for the best essay on "The Etiology of Gout."

AN ACT RELATIVE TO THE SUPPORT OF STATE POOR BY CITIES AND TOWNS.—The following act has recently been passed by the Massachusetts Legislature. It is hoped that it may serve to lessen in some degree the present abuse of medical charity.

Section twenty-six of chapter eighty-six of the Public Statutes, as amended by chapter two hundred and eleven of the acts of

the year eighteen hundred and eighty-five, and by chapter one hundred and fifty-three of the acts of the year eighteen hundred and ninety-one. Is hereby amended by inserting after the word "the," in the first line, the word:—reasonable,—and by striking out all of said section after the word "Commonwealth," in the sixth line, and inserting in place thereof the words:—The bills for such support shall not be allowed unless they are endorsed with the distinct declaration that, after full investigation, no kindred able to pay the amount charged have been found and that the amount has actually been paid from the city or town treasury, nor unless they are approved by the State board or by some person designated by it; and not more than five dollars a week shall be allowed for the support of a person in a city or town hospital, so as to read as follows:—Section 26. The reasonable expense incurred by a city or town under the provisions of the preceding section, within five days next before notice has been given as therein required, and also after the giving of such notice and until such sick person is able to be removed to the almshouse shall be reimbursed by the Commonwealth. The bills for such support shall not be allowed unless they are endorsed with the distinct declaration that, after full investigation, no kindred able to pay the amount charged have been found, and that the amount has actually been paid from the city or town treasury, nor unless they are approved by the State board or by some person designated by it; and not more than five dollars a week shall be allowed for the support of a person in a city or town hospital. [Approved, April 29, 1898.]

NEW YORK.

THE AMERICAN NATIONAL RED CROSS RELIEF ASSOCIATION.—A joint meeting of the Executive Committee of the American National Red Cross Relief Association with the Women's Committee on Auxiliaries was held during the past week at the office of the St. John's Guild. The Executive Committee declared in favor of purchasing and promptly forwarding to Key West a sea-going tug for the use of Miss Clara Barton; also of purchasing or chartering a Red Cross hospital-ship, to be equipped by the efforts of the Women's Auxiliary Committee. At a subsequent meeting, held at the Chamber of Commerce, the names of Drs. Richard H. Derby and Andrew McCosh were added to the Medical Advisory Board, which has charge of the enlisting of physicians and nurses in the Red Cross service. On May 31st there was held at the residence of the President, Mrs. James Speyer, a meeting of the Trained Nurses' Maintenance Red Cross Auxiliary, the object of which is to maintain one hundred trained nurses on one or more hospital ships. These will be carefully selected, and will serve without remuneration, and it is estimated that each nurse may be supported at a cost of \$25 monthly. It was announced at the meeting that a sufficient amount had been pledged by a large number of ladies to ensure a total of \$1,156 per month as long as the war should last.

A BEQUEST TO THE PENNSYLVANIA HOSPITAL.—Frederick F. Ayer, of New York, has given \$25,000 to supplement a bequest of \$50,000 by his mother, Mrs. James C. Ayer, who died in Paris in January last, for a pathological and bacteriological laboratory at the Pennsylvania Hospital in Philadelphia.

A CONTINUED LOW MORTALITY.—The favorable death-rate continues, but there has been no further reduction of the mortality of the city. During the four weeks ending May 21st the number of deaths represented an annual death-rate of 18.62 per thousand of the estimated population, which is exactly the rate of the four weeks preceding. The various infectious and

contagious diseases, in the number of cases and deaths reported, also vary very little from the preceding four weeks.

FIREMEN POISONED BY PARIS GREEN.—An extraordinary case of arsenical poisoning recently occurred among the firemen of Williamsburgh in the Borough of Queens. In drawing up the hose to the second floor of a burning building the men upset a number of barrels, and on returning to their engine-house after the fire was extinguished, seven of them began to suffer from serious symptoms, which Dr. Joseph Smith, of the Fire Department, who was summoned, recognized as those of arsenical poisoning. An investigation of the upper floor of the building where the fire occurred, which was a factory for the manufacture of paint and paraffine, showed that the barrels which had been overturned were filled with Paris green, and that in falling the heads of several barrels had sprung and the dry powder had scattered all over the room, impregnating the air which the firemen had inhaled. In the case of two of the men the poisoning proved nearly fatal.

THE CORNELL UNIVERSITY MEDICAL SCHOOL.—Among those who have been appointed to professorships in the new Cornell University Medical School, recently opened in the Loomis Laboratory, are the following: Alexander Lambert, M.D., and Charles E. Nammack, M.D., Professors of Clinical Medicine; Francis W. Murray, M.D., Professor of Clinical Surgery; George T. Elliot, M.D., Professor of Dermatology; Charles Stedman Bull, M.D., Professor of Ophthalmology; Allan McLane Hamilton, M.D., Professor of Mental Diseases; Wm. E. Stone, M.D., Demonstrator of Anatomy; Joseph E. Winters, M.D., Professor of Diseases of Children; and Gorham Bacon, M.D., Professor of Otology.

THERAPEUTICS OF THE SUPRA-RENAL GLAND.—At a meeting of the New York County Medical Association held May 16th, Dr. Wm. H. Bates read a paper on "The Therapeutic Uses of the Supra-renal Gland," in which he spoke of the extract of this gland as the most powerful astringent known in medicine. Dr. Bates's personal clinical experience with this agent was principally confined to ophthalmological and otological practice, in which he had found it of the greatest possible utility, but he gave an interesting *résumé* of the results obtained with it by other observers in a variety of pathological conditions. One of the most promising fields for its employment seemed to be in cardiac trouble, and several cases were cited in which it had proved efficacious in angina pectoris. Its hypodermic use was attended by so much irritation as to render that method of administration unadvisable, while when taken into the stomach it seemed to be comparatively inert. It had been found that the most efficient manner of employment for acting on the heart and other internal organs was to place it carefully upon the tongue, where it was absorbed by the mucous membrane before reaching the stomach.

Miscellaneous.

CONSTANT PRESENCE OF THE PNEUMOCOCCUS ON THE SURFACE OF THE TONSIL.

THE pneumococcus may be found in the mouth as a simple saprophyte in healthy subjects. M. Wetter has shown that the inoculation in mice of the saliva of individuals who had not been subjects of pneumonia caused pneumococcic septicemia in 20 percent. of the experiments. He found the saliva of those who had suffered from pneumonia more virulent; in four-fifths of the experiments septicemia was produced. At the meeting of the Société des Hôpitaux of April 15th, MM. Bezançon and Griffon showed by culture methods that the pneumococcus was present not frequently but constantly in the mouth. They had found that the serum of young rabbits aged about two months was a favorable medium for the cultivation of pneumococci. Mucus removed from the surface of the tonsil of forty individuals of all ages, some healthy and others suffering from various complaints, invariably yielded on this medium cultures of pneumococci. An important practical conclusion follows from this discovery. It is not sufficient to successfully inoculate the saliva or to make cultures from it to prove the presence of a pneumococcic affection. The expectoration or exudation must be directly examined, and the presence of a large number of encapsulated diplococci which color by Gram's method be proved. — *The Lancet*.

VACCINE VIRUS.

THE Department of Health of the City of New York calls attention, in a recent circular, to the improved form of bovine vaccine virus now issued from its vaccine laboratory; to the care exercised in its production, and to the excellence of the resulting product. A long and careful investigation of methods of production has led to a complete change from those formerly in use. The virus now issued and recommended for use is a liquid glycerinated pulp. This, it has been demonstrated, has greater activity, greater durability, and greater freedom from bacteria than the virus which is dried on points. Although led by its own observations to adopt this form of virus, the Department of Health in supplying such vaccine is only following the example of all of the best Continental vaccine laboratories. It is believed that no other virus is more fully tested before being issued than that prepared in the laboratories of the New York City Department of Health. The greatest care is taken to insure cleanliness in the production and preservation of the virus; all instruments and receptacles are sterilized, and the operations of inoculation and collection are conducted with constant reference to aseptic methods.

Before the virus from any animal is used, the calf from which it was obtained is sent to autopsy and the organs are examined for any evidences of disease. One sample of the virus is then examined bacteriologically, and a second is forwarded to the clinical tester of vaccine virus, and no virus is issued unless the reports of the pathologist, bacteriologist and clinical tester are all satisfactory.

The results obtained with the improved methods, under the rigid tests described, are excellent. During

eleven months of the year 1897, reports were received from more than 20,000 primary vaccinations made with this virus, and the percentage of success attained in these was over 99.

The virus is a syrupy, opaque, light brown emulsion of uniform consistency. It is put up in capillary tubes containing each enough for a single vaccination and in vials of two sizes, one containing one-fifth of a cubic centimetre for ten vaccinations, and the other containing one cubic centimetre for fifty vaccinations.

The virus, in common with the other products of the Department of Health, is furnished free to all public institutions in New York City on application. It may be obtained by private physicians at many drug stores throughout the different boroughs, or may be purchased directly from the Department of Health at its borough offices.

RECORD OF MORTALITY

FOR THE WEEK ENDING SATURDAY, MAY 28, 1898.

CITIES	Estimated population.	Reported deaths in each.	Deaths under five years.	Percentage of deaths from					
				Infectious diseases.	Acute lung diseases.	Diarrheal diseases.	Diphtheria and croup.	Measles.	
New York . .	3,438,899	1137	367	11.52	16.11	1.98	3.51	1.71	
Chicago . . .	1,619,226	—	—	—	—	—	—	—	
Philadelphia .	1,214,256	—	—	—	—	—	—	—	
St. Louis . . .	570,000	176	45	6.27	10.83	1.71	1.71	.57	
Baltimore . .	550,000	192	67	10.92	9.36	.52	2.60	.52	
Boston	517,732	180	38	66.66	11.11	5.55	16.66	5.55	
Cincinnati . .	405,000	92	—	2.16	8.64	—	—	—	
Cleveland . .	350,000	—	—	—	—	—	—	—	
Pittsburg . . .	285,000	94	38	19.08	10.64	7.42	1.06	2.12	
Washington . .	277,000	96	23	12.48	13.52	2.08	2.08	2.08	
Milwaukee . .	275,000	—	—	—	—	—	—	—	
Providence . .	150,000	60	12	4.98	13.28	1.66	—	—	
Worcester . . .	105,050	28	8	3.57	31.13	—	—	—	
Fall River . .	95,919	42	16	9.52	11.90	9.52	—	—	
Nashville . . .	87,754	32	5	3.13	3.13	3.13	—	—	
Lowell	87,193	30	10	12.12	12.12	3.03	9.09	—	
Cambridge . .	86,812	25	6	4.04	28.00	4.00	—	—	
Lynn	65,220	11	4	36.36	—	—	—	9.09	
Charleston . .	65,165	37	13	10.80	8.10	10.80	—	—	
New Bedford .	62,418	17	4	—	17.64	—	—	—	
Somerville . .	57,977	18	6	22.22	11.11	—	—	—	
Lawrence . . .	55,510	10	5	—	20.00	—	—	—	
Springfield . .	54,790	—	—	—	—	—	—	—	
Holyoke	42,364	10	4	—	—	—	—	—	
Salem	36,062	11	4	—	18.18	—	—	—	
Brockton . . .	35,853	—	—	—	—	—	—	—	
Malden	35,894	7	4	—	28.56	—	—	—	
Chelsea	32,716	11	—	9.09	18.18	—	—	—	
Haverhill . . .	31,406	6	2	16.66	16.66	—	—	16.66	
Gloucester . .	29,775	—	—	—	—	—	—	—	
Newton	28,990	—	—	—	—	—	—	—	
Fitchburg . . .	28,392	7	1	—	14.28	—	—	—	
Taunton	27,812	11	3	—	27.27	—	—	—	
Quincy	22,562	3	1	33.33	—	—	—	—	
Pittsfield . . .	21,891	—	—	—	—	—	—	—	
Waltham	21,812	5	0	—	40.00	—	—	—	
Everett	21,575	5	1	—	—	—	—	—	
North Adams .	19,135	7	3	—	28.56	—	—	—	
Northampton .	17,418	—	—	—	—	—	—	—	
Chicopee	17,368	5	2	—	20.00	—	—	—	
Brookline . . .	16,164	2	0	—	50.00	—	—	—	
Medford	15,832	2	1	—	—	—	—	—	

Deaths reported 2,387: under five years of age 699; principal infectious diseases (small-pox, measles, diphtheria and croup, cerebro-spinal meningitis, diarrheal diseases, whooping-cough, erysipelas and fevers) 218, acute lung diseases 330, consumption 321, diphtheria and croup 57, diarrheal diseases 48, measles 27, whooping-cough 27, scarlet fever 24, cerebro-spinal meningitis 24, typhoid fever 18, erysipelas 5.

From whooping-cough New York 13, Pittsburg 5, Baltimore and Washington 2 each, St. Louis, Boston, Cincinnati, Worcester, Cambridge, Lynn and Chelsea 1 each. From scarlet fever New York 17, Baltimore 4, St. Louis 2, Boston 1. From cerebro-spinal meningitis New York 9, Baltimore 6, Boston and Somerville 3 each, Washington and Lynn 2 each, Quincy 1. From typhoid fever New York 5, Pittsburg 3, Baltimore, Boston,

Washington and Providence 2 each, St. Louis and Cincinnati 1 each. From erysipelas New York 4, Somerville 1.

In the thirty-three greater towns of England and Wales, with an estimated population of 11,218,378, for the week ending May 21st, the death-rate was 16.4. Deaths reported 3,533; acute lung diseases (London) 177, measles 126, whooping-cough 109, diphtheria 50, diarrhea 42, scarlet fever 38, fever 15.

The death-rates ranged from 8.8 in Cardiff to 24.3 in Sunderland; Birmingham 16.7, Bradford 15.2, Gateshead 16.6, Huddersfield 15.8, Hull 13.2, Leeds 20.8, Liverpool 32.6, London 15.7, Manchester 19.5, Newcastle-on-Tyne 23.6, Portsmouth 8.9, Sheffield 17.8, Swansea 16.4, West Ham 9.8.

METEOROLOGICAL RECORD

For the week ending May 28th, in Boston, according to observations furnished by Sergeant J. W. Smith, of the United States Signal Corps:—

Date.	Barometer		Thermometer		Relative humidity		Direction of wind		Velocity of wind		Weather		Rainfall in inches
	Daily mean.		Daily mean.		8.00 A. M.	8.00 P. M.	8.00 A. M.	8.00 P. M.	8.00 A. M.	8.00 P. M.	8.00 A. M.	8.00 P. M.	
M...22	30.32	59	71	52	48	68	S.W.	S.	7	12	C.	C.	
M...23	30.17	60	71	49	68	70	S.W.	S.	9	12	O.	O.	
T...24	29.38	57	61	53	84	94	S.	S.	12	7	O.	O.	.15
W...25	29.98	51	53	49	96	97	E.	E.	12	10	O.	R.	1.74
T...26	30.02	48	50	47	99	93	E.	N.E.	12	10	O.	O.	
F...27	29.77	53	58	48	98	93	N.E.	N.	12	4	R.	O.	1.42
S...28	29.84	55	59	51	98	97	N.E.	N.E.	26	5	R.	O.	
													3.31

* O, cloudy; C, clear; F, fair; G, fog; H, hazy; S, smoky; R, rain; T, threatening; N, snow. † Indicates trace of rainfall. — Mean for week.

OFFICIAL LIST OF CHANGES IN THE STATIONS AND DUTIES OF OFFICERS SERVING IN THE MEDICAL DEPARTMENT, U. S. ARMY, FROM MAY 28, 1898, TO JUNE 8, 1898.

Acting Assistant Surgeon A. H. MANN, U. S. A., will proceed from Springfield, Ill., to Key West, Fla., and report for duty in general hospital at that place.

Acting Assistant Surgeon EZEQUIEL DE LA CALLE, U. S. A., will proceed from this city to Tampa, Fla., and report to the commanding general, 7th Army Corps, for assignment to duty.

Acting Assistant Surgeon ROBERT E. WILLIAMS, U. S. A., will proceed from San Francisco, Cal., to Angel Island, Cal., and report for duty, he will also render medical attendance to the garrison at Fort Baker, Cal.

Acting Assistant Surgeon W. HOFFNER WINTERBERG, U. S. A., will proceed to Alcatraz Island, Cal., and report for duty.

Acting Assistant Surgeon JOHN B. DABLING, U. S. A., will proceed from St. Paul, to Fort Snelling, Minn., and report for duty.

Acting Assistant Surgeons A. R. BOOTH, JOSEPH A. TABOR and T. S. DABNEY, U. S. A., are relieved from duty at New Orleans, La., and ordered to Tampa, Fla., for duty with U. S. Troops at that place.

MAJOR LOUIS W. CHAMPTON, surgeon, will proceed to Tampa, Fla., and report in person for duty to MAJOR-GENERAL WILLIAM R. SHAFFER, U. S. V., commanding the 5th Army Corps.

MAJOR VALERY HAVARD, surgeon, will proceed to Tampa, Fla., and report in person to MAJOR-GENERAL JOSEPH WHEELER, U. S. V., commanding the Cavalry Division at that place for assignment to duty as chief surgeon.

Acting Assistant Surgeons FRANCIS M. C. USHER and E. A. DE LIPSEY, U. S. A., will proceed to Key West, Fla., and report in person to MAJOR WILLIAM R. HALL, surgeon, in charge of the general hospital at that place, for duty.

Acting Assistant Surgeon C. L. G. ANDERSON, U. S. A., will proceed from Hagerstown, Md., to Newport News, Va., and report for duty with Light Batteries A and C, Pennsylvania Volunteers.

MAJOR PHILIP F. HARVEY, surgeon, will proceed to Tampa, Fla., and report in person to MAJOR-GENERAL WILLIAM R. SHAFFER, commanding the 5th Army Corps, for assignment to duty as chief surgeon of one of the divisions of that corps.

CAPTAIN JOHN L. PHILLIPS, assistant surgeon, is relieved from duty at Fort Walla Walla, Wash., and ordered to Alcatraz Island, Cal.

CAPTAIN THOMAS U. RAYMOND, assistant surgeon, is relieved from duty at Fort Canby, Wash., and assigned to duty with the expedition to the Philippine Islands.

Acting Assistant Surgeon BURKE L. JOHNSON, U. S. A., will proceed from Kenton, O., to Fort Thomas, Ky., and report for duty in the general hospital at that place.

Acting Assistant Surgeon WALTER WHITNEY, U. S. A., will proceed from Chicago, Ill., and report in person to the commanding officer, Fort Sheridan, Ill., for duty at that post.

CAPTAIN WILLIAM P. KENDALL, assistant surgeon, is relieved from duty at Fort Brown, Tex., and ordered for duty with 9th Cavalry in the field at Tampa, Fla.

CAPTAIN HENRY A. SHAW, assistant surgeon, is relieved from duty at the Brigade Hospital in the field at Tampa, Fla., and ordered for duty in general hospital, Key West, Fla.

MAJOR GEORGE H. TORNEY, surgeon, is assigned to duty in command of the U. S. Hospital Ship Relief.

Acting Assistant Surgeon S. MELVILLE WATERHOUSE, U. S. A., is relieved from duty at Fort Hamilton, N. Y., and ordered to Fort Myer, Va., for duty in general hospital at that place.

The order assigning MAJOR ROBERT H. WHITE, surgeon, to duty with the Philippine expedition, is revoked.

UNITED STATES MARINE-HOSPITAL SERVICE. EXAMINATION OF CANDIDATES.

WASHINGTON, D. C., June 3, 1898.

A board of officers will be convened at Washington, July 6, 1898, for the purpose of examining candidates for admission to the grade of assistant surgeon in the U. S. Marine-Hospital Service.

Candidates must be between twenty-one and thirty years of age, graduates of a respectable medical college and must furnish testimonials from responsible persons as to character.

The following is the usual order of the examination: (1) Physical, (2) Written, (3) Oral, (4) Clinical.

In addition to the physical examination, candidates are required to certify that they believe themselves free from any ailment which would disqualify for service in any climate.

The examinations are chiefly in writing, and begin with a short autobiography by the candidate. The remainder of the written exercise consists in examination on the various branches of medicine, surgery and hygiene.

The oral examination includes subjects of preliminary education, history, literature and natural sciences.

The clinical examination is conducted at a hospital, and when practicable candidates are required to perform surgical operations on the cadaver.

For further information, or for invitation to appear before the Board of Examiners, address,

SUPERVISING SURGEON-GENERAL,
U. S. Marine-Hospital Service.

BOOKS AND PAMPHLETS RECEIVED.

Notes on Vaccine Rashes. Human Food Laws. By Robert W. Hastings, M.A., M.D., Brookline, Mass. Reprints. 1898.

Public Health Reports (formerly Abstract of Sanitary Reports). Issued by the Supervising Surgeon-General, Marine-Hospital Service. Vol. XIII, Nos. 1 to 53. Washington: Government Printing Office. 1898.

Renal Suppuration, Catarrhal, Specific and Traumatic, and the Value of Micro-Uranalysis of the Urinary Sediment as an Aid to Definite Diagnosis of It. By Thomas H. Manley, M.D., New York. Reprint. 1897.

Twentieth Annual Report of the State Board of Health of the State of Connecticut for 1897, with the Registration Report for 1896, relating to Births, Marriages, Deaths and Divorces. Printed by order of the Legislature. New Haven: The Tuttle, Morehouse & Taylor Press. 1898.

Manual of Operative Surgery. By H. J. Waring, M.S., M.B., B.Sc. (Lond.), F.R.C.S., Demonstrator of Operative Surgery and Surgical Registrar, late Senior Demonstrator of Anatomy, St. Bartholomew's Hospital; Surgeon to the Metropolitan Hospital, etc. Edinburgh and London: Young J. Pentland. 1898.

Accident and Injury, their Relation to Diseases of the Nervous System. By Pierce Bailey, A.M., M.D., Attending Physician to the Department of Correction and to the Almshouse and Incurable Hospitals; Assistant in Neurology, Columbia University; Consulting Neurologist to St. Luke's Hospital, New York City. New York: D. Appleton & Co. 1898.

Retinoscopy (or Shadow Test) in the Determination of Refraction at One Metre Distance, with the Plane Mirror. By James Thornton, M.D., Adjunct Professor of Diseases of the Eye in the Philadelphia Polyclinic and College for Graduates in Medicine, etc. Second edition, revised and enlarged. Thirty-eight illustrations, 12 of which are colored. Philadelphia: P. Blakiston, Son & Co. 1898.

Address.

THE RELATION OF PATHOLOGY TO MEDICINE.¹

BY W. T. COUNCILMAN, M.D.,

Shattuck Professor of Pathological Anatomy in the Harvard University Medical School.

WE may safely say that in the past fifty years there has been a greater advance in our knowledge of disease and in our methods of treating it than in any other similar period of the world's history. Not only has our knowledge of disease increased, but with it has come from all sides a larger appreciation of the importance of definite knowledge in the practice of the medical art, and the facilities for the study and investigation of disease are constantly increasing. With the increase of knowledge it has been possible to apply more fully scientific methods of investigation and reasoning to medicine. It is becoming more and more a science and daily removed farther from the field of speculative philosophy. Close observation, hypothesis, and the tests of the hypothesis by further observation, comparison and experiment, have taken the place of speculation. The advance has not been pre-eminent in any one department of medicine but along the whole line. Every advance in the knowledge of disease has been followed by a practical application of the knowledge resulting in better methods of treatment. Often those very facts which were seemingly of least practical importance have yielded the greatest practical results. Certainly no one could have foreseen that the discovery by a French chemist that carbolic acid would arrest the progress of fermentation and destroy the lower forms of life would be followed by Lister's method of wound treatment.

Medicine has a greater interest for the layman as well as the physician and inspires in him a greater respect and confidence. Almost a new field has been opened to the humanitarian instincts of the people. Hospitals have been erected everywhere; and in their construction and maintenance nothing has been spared which could add to the comfort, and conduce to the better treatment of the sick within them. Laboratories have been erected in connection with the hospitals, in which the investigation of disease could be more efficiently carried out. In the hospitals, in addition to the physicians and surgeons who are actively engaged in the treatment of the sick, there are men whose work is only in the laboratory and who do not come at all, or only rarely, in connection with the sick. The work of these men lies in two directions. In the first place by the means of the study of tissues or fluids from individual cases, they assist in the diagnosis and thereby in the treatment of the sick. In addition to this their work consists in the study of questions concerning disease, which study is facilitated by the opportunities which the hospital gives.

A broader conception of the work of the hospital has arisen. It is now generally held that in addition to the treatment of the sick within its walls, the hospital has other duties. It is in hospitals that the study of disease can be most efficiently carried out. Large numbers of sick, with different forms of disease and with different stages of the same disease, are grouped together; and the opportunities for observation and

investigation are much better than can be afforded by the sick in private practice. Both the medical profession and the public demand that in exchange for the opportunities which the hospital gives for the education and development of the practitioners, those holding positions in it shall by their work contribute to our knowledge of disease.

In the first volume of his *Archives*, published in 1847, in the famous article in which he laid down the lines along which medicine was to advance and along which it has advanced, Virchow says, "the filling of the clinical position in a hospital has now become a matter of supreme importance because the clinician must not only be a scientific practitioner, but also an observer and investigator." The importance of this view of the hospital has been borne out in the histories of all of the great hospitals. The work which such hospitals as Guy's, or the Charité Hospital in Berlin, has done in the actual relief of suffering is as nothing compared with the benefits which the hospital has rendered mankind in the increase of knowledge which has come from the study of disease within its walls. It is only by means of their connection with great hospitals that the work of such men as Bright, Traube, Frerichs and others has been rendered possible.

Our conception of medical education has also changed. It is considered no longer sufficient that the student should be told things. The laboratory and the hospital ward have become more important factors in medical education than the lecture-room. We are becoming more convinced that the student must be taught not only the art but the principles on which the art is founded. He can obtain his knowledge in great part by personal observations and experiment, for in this way only can knowledge come. It is of more importance that the powers of observation and the faculty of scientific reasoning should be cultivated in the student than that he should memorize supposed facts.

That branch of medicine which we term pathology has possibly felt the quickening influence of science more than any other. New fields have been opened to it. It has come in closer connection with biology on the one hand and with the practice of medicine on the other. As comparative pathology it has become an important element in the economy of the country. New methods of investigation in anatomy and physiology have been quickly applied to the study of problems in pathology. The close association and the mutual interdependence of pathology and clinical medicine cannot be questioned. This is so fully recognized that the trustees of hospitals are willing to erect and maintain, at a considerable expense, buildings in which it shall be studied.

I have thought that it might not be without interest to you to learn from a pathologist something of pathology, its position in the natural sciences, its relation to clinical medicine, its problems and its relation to the medical student.

Pathology may be defined in a broad sense, as that branch of biology which has to do with the study of life under abnormal conditions. It is impossible to define life. When matter has certain attributes, when it reacts in certain ways to external influences acting upon it, it is called living matter; and these attributes and reactions common to it in all forms are sufficient to distinguish living matter from all other forms of matter.

¹ Annual Discourse before the Massachusetts Medical Society, June 9, 1898.

The phenomena which living matter exhibits, whether it be in the form of a simple unicellular organism or in the complex form of a mammal, under the influence of external conditions, constitute the phenomena of life.

When we study simple unicellular organisms under the microscope, we can in various ways change the conditions which surround them and observe the phenomena which they exhibit under these varying conditions. We find certain conditions which are favorable for them. Under these they absorb food to supply the material which is lost in the production of force; the protoplasm increases in amount, new individuals are produced by the division of the cell, and the species preserved. We can subject them to a greater or less degree of temperature, or expose them to the action of chemical substances, observing them all the while. Under such influences we find that the phenomena which they exhibit change their character. By gradually increasing the temperature, the movements of an ameba at first become more rapid, then slower, and finally ceases. We can also influence in some degree the amount and character of the substances which certain unicellular organisms produce. Or, again, we can so alter the external conditions that the simpler phenomena of life, as shown by alimentation, can be carried on; but there may not be sufficient force conveyed to the organism to enable it to perform the more complex phenomena involved in reproduction.

Slight variations in the external conditions have no effect on the phenomena which living beings exhibit. The movements of an ameba or the movement of the cilia in a paramecium or a bacterium will continue in the ordinary manner if the temperature be raised or lowered only a few degrees above or below that in which they ordinarily live. The external conditions to which living beings are subjected are constantly varying; not only does the temperature vary but the quality and amount of substance serving for food are constantly changing. This capacity of living under such varying external conditions is spoken of as physiological adaptability or resistance. It is only necessary to think of the conditions under which man lives to see how great is this physiological adaptability of the organism. This is only possible by means of the mutual interdependence of the organs. Under certain conditions more work will be thrown on one organ of the body than on another, or the function of one organ may be so modified that it will act in such a way as to be of advantage to the others. One of the best examples of this interdependence of organs is seen in the action of the skin and kidneys. Physiology teaches us every day more and more of the marvellous ways by which the circulation adapts itself to meet different conditions.

A certain degree of variability in the phenomena is perfectly consistent with a state of well-being of the organism. We call the state produced in living beings by unfavorable external conditions which pass beyond the adaptability of the organism, disease, and the phenomena exhibited under these conditions, symptoms or signs of disease. The phenomena produced in disease are due to alterations of structure. Unfavorable external conditions produce an alteration in the structure of the living material in consequence of which it exhibits different phenomena. These alterations in structure which result from unfavorable influ-

ences and to which the phenomena of disease are due are called lesions. In most cases these lesions are sufficiently obvious. They may be present in a single organ or may be widespread. In rare cases we are unable to recognize them with the means at our command, although we must assume them to exist. With the increase of our technical methods of study we daily become better able to ascertain the character of these structural alterations, but even now it is only the more obvious alterations which are accessible to our study. It is perfectly conceivable that there may be alterations in chemical composition which we may not be able to recognize, and which may exercise an important influence on function.

When a number of living beings are subjected to unfavorable conditions, all being equally exposed, they will not be equally affected. If the conditions are sufficiently unfavorable, the majority may be destroyed and only certain individuals survive. The same thing is seen in every tale of shipwreck and privation; certain individuals remain alive while others perish. Although for every species of living beings we can determine in a general way the limits of the unfavorable conditions under which life is possible for the vast majority, certain ones will always be found which will not come up to or will pass beyond the standard. Even in the observation of ameba it is seen that not all will cease their movements at the same time when subjected to the same degree of heat. Some will cease to move before the majority are affected, others long after.

In dealing with living matter we are not dealing with chemical substances of known character in which the same effect is produced by a given cause, but with highly complex substances. Not only does every species, as species, have a law of its own, but even every individual of a species has a definite individuality, and may show in various degrees differences in power of resistance, and in other ways depart from the standard. The variation in physiological resistance may not show itself by any difference which can be demonstrated. It is not possible from the most minute examination of a number of amebæ of the same species to designate in advance those which will prove to be more resistant to heat or chemical substances. The greater resistance may depend upon certain substances which are present in larger quantities in some individuals or upon a greater firmness or regularity in the chemical molecules. This variation in physiological resistance becomes more complex in the higher animals, which are not composed of single units capable of independent life, but aggregations of units arranged in organs and all interdependent.

Pathology being the study of disease, all that belongs to disease comes within its province. It has to do with the unfavorable external conditions, the causes of disease in their action on the living body. Here it has a close relation with hygiene, which is the general study of the causes of disease in relation with other external agencies and the means for preventing their action. It has to investigate those conditions underlying disease in consequence of which the physiological resistance of the organism to external conditions may be lowered. It must embrace the study of the lesions produced by these varying causes and the manner of their production. These lesions may be produced in the embryo and in various ways influence its development. In the study of the lesions there is a

close union with anatomy and embryology. The anatomical lesions produced by disease affect in various ways the functions of the different organs, and the disordered functions and the general phenomena of life of the diseased individual must be studied. In this pathology is closely related to physiology, or the study of the phenomena of life in normal individuals.

Pathology must be more than a descriptive science. It must be explanatory. The most exact description of a pathological lesion can give little information of the manner in which the lesion is produced, and still less of the effect which the lesion will have on function. The study of the lesion in itself, although the tissue change may be interesting, is as void of wide interest as the study of human anatomy separated from comparative anatomy and embryology. Pathology must explain the lesion; and this involves the study of the cause, the manner in which this cause acts on the tissue, how it reaches it from the outside, the gradual changes which the tissue undergoes in the production of the lesion, the effect of the lesion on the function of the tissue in which it is situated, the influence of the disordered function of this tissue on the general organism, and the means by which the diseased tissue is repaired or regenerated. The methods used in the study are the same as in any other science, observation and experiment. Experiment is as indispensable in pathology as in any other branch of science.

Such being in brief a general view of pathology, let us consider a little more closely the subjects for investigation. Teratology embracing the cause, the modes of formation and the influence exerted on the entire organism by malformations, may properly be considered a branch of pathology. As such it is closely linked to embryology, and its problems must be attacked from the embryological point of view. The explanation of the mode of development of the malformations can only be fully appreciated by those who have made embryology their chief study. The malformations, constituting as many of them do such obvious departures from the normal type of the individual, have been from the beginning of the study of pathology an object of description. No attempt was made to classify them, or to ascertain their cause. Then came the period in which the malformations were grouped together, classified and arranged in the order of those affecting the entire individual, and those affecting certain organs. A still further mode of classification involves some conception of their manner of production. It was seen that some of them were due to a separation of parts. Many of them were seen to represent the persistence of a condition found only in the embryo. In the first attempt to ascertain their etiology they were considered, as were diseases of that period, to be a manifestation of the wrath of God. Their study advanced from the age of superstition to that of speculation. In the speculative age they were attributed to the intercourse of human beings with animals and to the influence of mental states of the mother on the fetus *in utero*. The first great advance which was made in their study was when it was ascertained that under the influence of unfavorable external conditions malformations could be produced in the eggs of chickens and fishes. With these observations began the study of the experimental production of malformations to which Dareste in France has made the most important contributions. He showed that it was possible to produce certain of the more common malformations in

chickens by subjecting eggs to various abnormal conditions, such as shaking them, standing them on end, subjecting them to variations in temperature, etc. All of these external conditions exert an influence on development. With few exceptions, however, it has not been possible to produce at will any given malformation.

The results of this study, together with observations on abortive human embryos, have shown that most malformations take place at a very early period of embryonic life. The observations of Dareste have been carried still further, and the study of malformations from the experimental point of view has become the main work of certain embryologists in Germany and in Italy. Even in this field, which at first sight would seem farthest removed from experimental inquiry, the experimental method has given the only results of importance. Experimental teratology has now investigators in this special field, laboratories devoted to it and an important periodical literature. There is little doubt that certain problems in normal development may be elucidated by the study of the abnormal, in the same way that our knowledge of normal structures and function has been increased by the study of disease.

Teratology has a further important connection with pathology, in that malformations constitute a part of the underlying causes of disease, those conditions of the organism which render it more susceptible to the action of unfavorable conditions. Many of the questions relating to immunity and to inheritance may also be considered under it. In all of these questions there remain problems enough for investigation.

The study of pathological anatomy may be said to have passed through a period very similar to that of teratology. In the beginning pathology was only concerned with the curious. In the first books on the subject we only find descriptions of very obvious departures from the normal type, together with an imperfect account of the symptoms of the individuals, a collection of curious and very often interesting facts without attempt to harmonize them or to explain them. Then came the period of better observation of the lesions and their classification; and this reached its acme under Rokitsansky, who may be said to have occupied the same position in pathology that Linneus did in botany. Even to-day nothing can equal the accuracy of Rokitsansky's observations. There are few things which he did not see. When some lesion or combination of lesions seems entirely new, it is only necessary to go back to the work of Rokitsansky to find that he has observed and accurately described it. Rokitsansky made pathology or pathological anatomy a descriptive science. In his attempt to *explain* the pathological alterations he so faithfully described, he had recourse to speculation, elaborated his theory of crasis, and by his force of presentation succeeded in having it generally adopted. According to this, all pathological conditions were due to a certain state of the system known as the crasis. In all pathological new formations a mother fluid was produced, which was termed the blastema; and under the influence of a particular crasis, in the one case, carcinoma, in another case, pus, or in another case, tubercle, could be formed from the blastema.

This school of pathology reached its full development under Rokitsansky, and was a legitimate outgrowth of the speculative philosophy of Germany. Systems of philosophy developed in medicine as they

had developed in other branches of learning, and from the beginning of this century up to the time of Virchow German medicine was largely founded on metaphysics. The case was different in England. Here medicine had felt the magic influence of John Hunter. He discarded entirely speculation and went back to observation; and it was due to his influence that English medicine advanced. In John Hunter were combined wonderful powers of observation and skill in experimentation. In Rokitsansky were combined powers of observation which have scarcely been equalled and powers of speculation almost as marked.

The successor of John Hunter was Virchow, and his work is the foundation-stone on which German medicine has been erected. Virchow may be said to have given us our present conception of pathology. He taught us that our study must embrace, not only the lesion as an anatomical condition, but its causes, its mode of formation and its influence on function. Before Virchow, Morgagni had taught us that disease was to be referred to the organs of the body. Bichat went much further by referring it, not to the organs, but to the tissues composing the organs. Virchow went still further in studying the changes in the cells, and gave us the cellular pathology. It was his great service to have fully appreciated the importance of the work of Schwann and to have carried the principles of the cell theory into pathology. He was the first to recognize that pathology was the study of life under abnormal conditions, and that all we could gain from the study of physiology and embryology had a direct bearing on pathology. More than all, he taught us that the same methods of research which were used in the other natural sciences were to be applied to medicine.

There is probably little more to be done in the way of description of gross pathological lesions. There is much to be done in the study of the finer cellular changes of organs, their causes and mode of production. Many of these changes have only recently, owing to improvements in optical instruments and in methods of investigation, been apparent to us. We are learning to investigate more closely, and that our investigations must have a wider scope. We recognize that lesions which are of great importance are not evident on examination with the naked eye; further, that we must often seek in slight lesions produced in one organ the causes of extensive lesions in another. In certain diseases, as in typhoid fever, the effect of the disease is seen in the production of cellular changes in all the cells of a similar character in the body. Local and general immunity are connected with changes in cells. It is no longer sufficient to investigate single organs in studying the effect of a cause of disease, but all the organs must be investigated. The pathologist is as much interested in cells as the histologist and embryologist, and all methods which facilitate their study in these branches find a quick application in pathology.

(To be continued.)

THE ALERT PRESCRIBER.—A gentleman in the car was telling how good his doctor was. "Clever?" said he, "well, I should say he was. The other day I called him in when I had swallowed five cents. He said if the coin was not counterfeit it would pass, and made me cough up two dollars."—*Medical Record.*

Original Articles.

THE PATHOLOGY, GENESIS AND DEVELOPMENT OF SOME OF THE MORE IMPORTANT SYMPTOMS IN TRAUMATIC HYSTERIA AND NEURASTHENIA.¹

BY MORTON PRINCE, M.D.,

Physician for Diseases of the Nervous System, Boston City Hospital;
Clinical Instructor in Diseases of the Nervous System, Harvard Medical School.

(Concluded from No. 23, p. 540.)

III. — SYMPTOMS WHICH ARE THE PHYSIOLOGICAL EXPRESSION OF EMOTION.

A VERY common set of symptoms, following and frequently continuing some time after an accident, are nausea, vomiting, vaso-motor disturbances, perspiration, palpitation, and the like. The genesis of such symptoms I conceive to be due to the fact that they are the normal physiological expression of emotion or nervous shock. The nervous system is so constructed that a shock like a fright excites these symptoms. This is common knowledge; whether or not they persist for any length of time after the primary shock, often depends upon the state of mind of the person, and whether the same or a similar emotion is persistently re-excited by other circumstances of daily life or by the introspection of the patient. Sometimes their persistence may be due to the persistence of the primary shock; but in my experience it has been a common observation that such complex symptoms having been once excited, afterwards, as long as the subject is in a neurasthenic or hysterical state, any cause which induces a similar even though mild shock, with its accompanying emotions, will induce the same set of symptoms over and over again. These latter sometimes seem to become independent of the original exciting cause. I might cite numerous illustrations of this from my case-book.

Still another phenomenon of emotion is the *final association of the emotions with many of the corporeal symptoms, like pain, fatigue, etc.*, exhibited by the patient, so that even after the subsidence of these latter symptoms they are re-excited by anything that reawakens the emotion. This is a very important group of phenomena in the clinical picture of individual cases. In illustration, I may cite the case of a lady who was a subject of traumatic hysteria from a fall upon her shoulder while getting off a train. During her convalescence, and for a long time after substantial recovery, she experienced all the old burning and lancinating pain of a very intense nature in her arm, together with flushing of the face, mental confusion, nervousness, and other emotional disturbances, whenever the accident was referred to. Another patient, whenever startled by a loud noise, which evidently recalled the crash of the accident, likewise suffered from a whole train of painful and emotional symptoms. Another suffered from nervous spells, feeling of fright and extreme tremor affecting the whole body, by simple thoughts of his condition.

Sometimes the original exciting cause of these symptoms may be forgotten by the patient. The following is a very remarkable example of this, and shows how, to the original emotion become afterwards attached all the other physical stigmata from which the patient suffers.

¹ Read before the Clinical Section of the Suffolk District Medical Society, May 18, 1898.

OBSERVATION I. Miss F., now under observation, although much improved by suggestive therapeutics, and at times entirely free from very severe symptoms, still relapses whenever emotionally excited. The cause of the emotion may be distressing thoughts caused by religious services, books, minor events of everyday life, anxiety, disappointment or fright like the following: One day, after having been free from symptoms during the previous twenty-four hours, and feeling perfectly well, without fatigue, pain, or any other symptom, she presented herself with a dejected, fatigued look upon her face, which betrayed that something had gone wrong. She then stated that she had felt perfectly well up to supper-time of the previous evening, when, while she was in a restaurant, dark clouds came up; on going out, from the looks of the sky she got the idea that a thunder-storm was coming up, and at the thought she became stricken with terror. At once she became affected with palpitation, nausea, hot and cold feelings and a sinking sensation, and felt as if she could not run home fast enough, but she compelled herself not to run. When she reached home the old neuralgic pains of a very severe type returned in her head and side. These had been very severe and a prominent feature in her neurosis. She also experienced a feeling of very great fatigue. All these lasted about two hours. Later, mental depression came on, which she ascribed to reading a gloomy book. In explanation, she stated that she had great fear of thunder-storms, which always throw her into this condition. This fear had only existed during the last three or four years, and previous to this time she had never experienced it. She stoutly maintained that she could not remember the first occasion when she was afraid of lightning, but that this fear came on about three or four years ago.

She was then hypnotized. In hypnosis she at once stated that she remembered perfectly well the first occasion when she was frightened by lightning. It was at night in a Fall River hospital where she was a nurse, a tremendous storm came up, and while she was in the corridor, in a great flash of lightning she saw an insane patient running down the corridor towards her as if to seize her. The patient did seize her, but did not do her any harm. Seeing the patient in the flash gave her a great terror, similar to, but worse than the experience of the day before just described. The other symptoms were also the same, only worse. Ever since she has been afraid of lightning storms and always suffers from severe symptoms during them.

On another occasion, this subject, while feeling perfectly well and free from symptoms of any kind, was in a restaurant and saw seated at another table a woman of whom she was very much afraid. This person is physically repulsive to her, and Miss F. thinks her crazy. The minute Miss F. saw her she was conscious of an emotional state which was probably akin to that of fear, and of a sudden she felt a return of all her symptoms, which persisted during the remainder of that afternoon.

OBSERVATION II. Mrs. D. has had hysterical neurasthenia for years with ups and downs, sometimes being quite well, at others an invalid. When her condition is bad, her character changes in such a way that small contradictions, disappointments and annoyances that, when she is well, would not be noticed, throw her into a state of temper. This emotional state comes on like

a flash; then she is invariably attacked by various sensory symptoms, and among them headache, a very severe gastric paresthesia and fatigue. The emotional state thus excited is quite marked, and its sudden development, with its associated symptoms of pain and fatigue, from out the midst of apparent health, is very striking. She may be apparently well, and five minutes later she will be distressed by a return of all her old symptoms.

OBSERVATION III. Mrs. X., a neurasthenic for years, develops headache, abdominal pains, fatigue, nausea and various sensory disturbances when her feelings are hurt by what she interprets as a rough word, or when emotionally shocked by incidents that give her moral shocks.

OBSERVATION IV. Mrs. Y., when her feelings are wounded, immediately experiences great pain in her spine, headache, fatigue and more complex symptoms, compelling her to take to bed. I have been sent for over and over again to see her in such circumstances, being usually able to guess the nature of the cause.

OBSERVATION V. Mrs. D., when convalescing from hysterical neurasthenia, informed me that she was then able to laugh without nausea for the first time in years. In explanation, she said that one day several years ago, at the beginning of her illness, she had severe dyspepsia with nausea. For this she took a charcoal lozenge; while taking it some one made her laugh, the lozenge "went down the wrong way," and she got into a gale of hysterical laughter which she could not control. Ever since this date, laughter has brought on nausea, so that she has avoided it as much as possible, and even at the theatre has always tried to suppress laughing because of the nausea thereby excited.

OBSERVATION VI. Miss F. states that anything that recalls to her mind a certain person, a girl who once gave her a mental shock in church, or that recalls her sensory experiences on that occasion, puts her into a trance. The incident was as follows: While she was in church and the "Hallelujah Chorus" from Handel and Hayden's Oratorio was being played on the organ, this girl leaned over and told her something that gave her a shock, much as if she had heard of the death of somebody. That is, it was that kind of a fact. At the time there was a smell of incense in the church and the wind was blowing through the open window upon her face; this breeze she felt distinctly. When she heard the words whispered to her she thinks she must have gone into a mild trance such as she now frequently has. She was conscious of a distinct shock and then there was a blank period of time of which she remembers nothing. Now anything that recalls this girl to her mind, or the scene in the church, is apt to have the same effect, the "Hallelujah Chorus," the smell of incense, or even a breeze blowing upon her face, will bring back the whole incident, no matter where she happens to be, and send her into a trance.

The relation between emotional states and their accompanying pathological manifestations is one that is not yet well understood. It is a field that will well repay future study, and one in which we must seek for the pathology of many traumatic cases of hysteria and neurasthenia. Exactly why the development of an emotional state, like fright or anger or sorrow and wounded feelings, should induce various somatic symptoms, referable to different parts of the body which appear to be unrelated to the emotion, is not clear, but

nevertheless it is a clinical fact. The excitement of such emotional states may not only originate a neurosis, but after the apparent subsidence of the neurosis, may re-excite all the symptoms and keep them in existence. The law of association probably plays here an important part.

Still more obscure than the relation to the emotional state of the kind of symptoms which I have detailed is that of symptoms like paralysis, anesthesia, and other hysterical stigmata of this type, which it is well-known frequently follow fright. What takes place psychically or physiologically when paralysis follows an emotional shock or why it should follow is not quite clear. The following case illustrates this etiology in a characteristic way:

January 17, 1898. T. R., male, aged twenty-one, has a paralysis of the whole left arm and hand, with painful contracture of the fingers and absolute loss of sensation extending from about three inches above the wrist to above the shoulder. An area of blunted sensation extends further over the chest and over the left face. Attempts to passively move the arm or fingers cause great pain. The patient entered the hospital in the service of Dr. George B. Shattuck, about three weeks ago, that is, December 28, 1897, complaining of severe pain in his left side; this was his chief complaint. About two weeks after entrance, the patient had an attack of unconsciousness but without spasms, excepting that swallowing movements were noticed by the house-physician. This attack was followed on the following day by the development of the above described paralysis of the arm. A more careful inquiry into the circumstances of the accident revealed the following interesting facts:

Two days before entrance, that is, December 26th, T. R. was loading granite curb-stones into a team; a stone had been partially placed in the wagon so that one end of the stone rested on the wagon and the other end was held by T. R. He felt the strain was too great for him and called for help. The thought occurred to him that if he let the stone fall as he would be obliged to do without help, the other end would topple over and strike him and kill him. Two men came to his help and T. R. let go his hold. He immediately sweated profusely but kept at his work. When he took hold of the next stone he began to feel sleepy; his eyes closed against his will (this was illustrated to me by the patient), and everything looked dark, but by force of will he kept on and towards the end of the loading he began to feel frightened. Before this moment he thinks he was not conscious of this feeling: He was then in a profuse perspiration and went into the barn to rest. Here he sat down and nearly fell asleep, that is, found himself constantly dozing; he felt obliged to "pull himself together." All this time both his hands were shaking, and he felt a burning feeling in them as though he was touching hot coals.

He told his uncle that he felt "funny," and he was told to go into the house and drink some warm tea; here he rested for a half or three-quarters of an hour and then mounted his wagon and drove to Everett, several miles away, with his load. It was not long before severe pain came on in his left side in the costal region; this pain was excited by movement, and he began to think he had hurt himself. After returning to Charlestown he again loaded his wagon with cobble stones, which is the last thing he remembers

doing until he found himself in the house. He does not know how long he was unconscious, but thinks it was about three or four hours. The following afternoon he was sent to the hospital, when his chief complaint was pain in the left chest, as just stated.

On January 10th the attack of unconsciousness above mentioned occurred. Examination of the patient showed the case to be one of pure hysterical paralysis with its usual accompanying physical manifestations. The interest centres in the therapeutic facts and the etiology. The nature of his malady was explained to him; he was assured that nothing serious had happened, that it was the result of his mental agitation, and that the cure depended on his own self-control, and if he did not try to recover control, his trouble would grow worse. The result was that his symptoms began at once to improve and very shortly disappeared. Etiologically, the case is interesting as showing how a pure emotion, without any trauma or shock, as that word is usually understood, brought on the entire neurosis. The development of the paralysis two weeks after the original exciting cause is also instructive.

HOW RUSSIA CARES FOR HER FOUNDLINGS.¹

BY J. L. HILDRETH, M.D., CAMBRIDGE, MASS.

(Concluded from No. 23, p. 536.)

WITH the exception of the Department of Outside Aid, the system at Paris now much resembles that at Moscow. The foundlings are kept but a short time at the hospital, and are then put out to foster-mothers in the country. An attempt was made, a few years ago, to introduce what was called the system of *deplacement*, by which the infants were to be sent, each to a district remote from its birthplace, thus removing from mothers the temptation to desert their children, in the hope of later receiving them again to nurse—a practice common in France, it appears, as well as in Russia. But the experiment was soon abandoned on account of the expense, since the fact that the foundlings were not all received at one or two great central hospitals, but taken in at numerous smaller ones, in different parts of the country, made a species of transportation-exchange necessary to carry out the *deplacement* plan.

The sum paid to the foster-parents in France, as in Russia, is gradually diminished with the development of the child's capacity to care for himself and be of service to others. The total cost of maintenance for each child during his first twelve years is said to average the very moderate sum of 1,500 francs, about \$300.¹⁵ At twelve apprenticeship begins, but the supervision of the government inspectors continues till the ward is twenty-one.

The Paris Asylum receives annually, exclusive of those registered in the Department of Outside Aid, about 5,500 children. The provincial hospitals report an annual average of about 36,000 under the care of their authorities. These include not only foundlings proper, but children temporarily cared for while their parents are undergoing penal servitude, or while they are in hospitals for treatment. It is also admitted that there are still legitimate children of living parents among the number, although in no such proportion as

¹ Read before the Cambridge Medical Improvement Society, April 25, 1898.

¹⁵ Encyclopædia Britannica.

in the years before the turning-box was abandoned. Even since its abandonment, the formalities of admission to the hospital have been less strict than in some other countries.

Probably in no country of Europe have the principles underlying the public care of foundlings been more ably and exhaustively debated than in France; and France may be considered the representative of that system of lavish and somewhat indiscriminate public provision which has been called by some writers the Catholic, by others the Roman, as distinguished from the Protestant or Teutonic system. Curious enough—and yet not at all curious, when one reflects upon it—is the relation between the laws of the various European countries and their conduct of these public charities. Teutonic custom is far less lavish in its public provision for the foundling; but Teutonic law pushes back much further the private responsibility for the child's maintenance, in many cases extending it to the very distant relatives, if they can be found. An extreme instance of both these tendencies is Scotland, where there have never been any foundling hospitals, and where a notable attempt of a private philanthropist to establish one was overruled by Act of Parliament in 1832, on grounds of public morality: but where the law gives to the mother of an illegitimate child unusual claims for aliment upon its putative father. It is a crime, in Scotland, to desert an illegitimate child: the few children who are deserted, in spite of law and its penalties, are cared for by the poor-law authorities. This possibility of bringing proceedings for aliment against the father of an illegitimate child is pointed out by a writer in the latest edition of the "Encyclopædia Britannica" as marking a fundamental difference between the law of most Protestant countries, on the one hand, and that of those Catholic countries which have adopted the Code Napoleon, on the other. Where the law gives the mother the means of redress, there is far less occasion for public provision for the child. The cases of real necessity will be relatively few, and can safely be left to the ordinary administration of the poor-law system, or to private charity. Such is the custom of England, Germany, and most of the other Protestant countries of Europe, and it will be recognized at once as that of our own country.

Both of these opposing systems—the Roman and the Teutonic—have had able defenders, and it must be admitted that a plausible case can be made out for either side. The lavish bounty of the Roman method appeals at once to the inherent generosity of human nature, and all the more strongly on account of the helpless condition of those for whom it pleads. It is claimed for it that it prevents infanticide and abortion, and makes it possible for the woman who has slipped once to regain a footing in society again. Its opponents, on the other hand, say that it encourages vice and profligacy. They claim, too, that so far from its being an advantage for an erring mother to be relieved of her child, the care of the little one is often a positive safeguard to her, preventing her from returning to evil ways, and not seldom a tie to unite father and mother in a happy marriage. Statistics are quoted in support of both these positions—and where the statisticians disagree, who shall decide? The fact seems to be, that so many other considerations enter into the problem—considerations of national temperament, standards of morality, expense of living, average age of marriage, freedom of divorce, and so on,—that statistics alone

do not count for very much. The writer of the article in the "Britannica," just referred to, is perhaps right in his suggestion, that each system may be the best for those nations which have adopted it. There is no doubt that the Teutonic system brings less expense upon the countries following it, and its cheapness has been made the subject of taunts by those opposed to it. Said Lamartine, the brilliant French orator, in an impassioned appeal in behalf of the turning-box, "It was reserved for the sordid ingenuity and pitiless economy of certain theorists of Great Britain to undermine, in the name of arithmetic, an institution founded in the name of morality and fraternity."

Let us glance for a moment, in closing, at the experiences which led, in Great Britain, to the adoption of this frugal Teutonic system.

The largest foundling hospital in the United Kingdom is that established in London, early in the last century, by Thomas Coram, a retired sea-captain. Captain Coram's kindly heart was touched, as he went back and forth, day by day, among the wharves and dockyards, by the sight of abandoned children, half-naked, cold, starving, or already dead. Seventeen years he labored at his subscription list, and in 1789 had the satisfaction of seeing his hospital incorporated. It became at once an object of popular interest, and from that day to this perhaps no charity in Europe has been associated with more brilliant names. The sermon at its dedication was preached by Sterne. Handel gave a performance of his "Messiah" for its benefit, year after year, adding to its funds a total of £10,000. The beautiful organ in the chapel was also his gift, and it was he who composed for the childish choir the anthems of which Mendelssohn said, on hearing them, that they were "like the jubilate welcome at the gates of Paradise." Hogarth exhibited his paintings to aid the hospital, and gave his celebrated "March of the Guards to Finchley" to adorn its walls. The "Christ Blessing Little Children," over the communion table in the little chapel, was also given by its painter, Benjamin West. During the reign of George III the popular interest in the hospital was so keen and the grounds so attractive that they became the place for fashionable promenades.

In the early days of the hospital, the rush for admission was so great that lots were used to determine which children should be received. It is said that one mother, after drawing a black-ball for nineteen mornings in succession, dropped dead with joy when, on the twentieth, she drew the coveted white. It may have been incidents like this—as well as the belief that the public enthusiasm and generosity would be equal to unlimited demands—that led the House of Commons, in 1756, to direct that every child presented should be received, to appoint receiving places all over the country, and to guarantee financial support. But the remedy proved worse than the disease. The first day on which the basket—the English equivalent of the turning-box—was placed outside the hospital door, it received 117 foundlings. Within the first three months 3,727 were taken in. To carry infants whose mothers wished to be rid of them became a regular branch of the carrier's trade, and a shocking proportion of those entrusted to them reached the hospital lifeless. Children at the point of death were sent by their parents to save the expense of burial. Legitimate children of paupers were also

sent there to save the local guardians of the poor the care and cost of their maintenance. It was believed that criminal intrigues increased fearfully, in consequence of this easy means of disposing of illegitimate children.

After a four years' trial — during which time 15,000 children had been received and cared for, at a total expense of £500,000, the basket system was abandoned ("Encyclopædia Britannica"). The present system, which has been, substantially, in use since 1801, admits only illegitimate children whose mothers make personal application in their behalf, and convince the receiving officers both of their need and of their previous good character. By these officials their secret is carefully guarded, but to them it must be disclosed. This regulation has been criticised as over-strict, but it is difficult to see any middle ground between it and indiscriminate admission. Children thus brought by their mothers are not, in the exact sense, "foundlings" at all — that is, they are not deserted by their parents — and it has been objected that the hospital has no right to call itself a "Foundling Home." With these limitations upon admission, the hospital maintains only about 500 children — an insignificant number indeed, compared with those reported from Paris and Moscow. The care of the children after their admission is very similar to that in other foundling homes; at fourteen the girls are sent out to domestic service; at sixteen the boys are apprenticed; all are under supervision till they reach the age of twenty-one. The foundlings sent into the country from London do not remain as many years as those sent from Paris or Moscow; and it is said that the ill-effects of their city life are seen in stunted development and feeble health ("Chambers's Encyclopædia").

Making all due allowance for the difference in moral standards between England and the countries of the Continent, it is obvious that the 500 children maintained at the Foundling Home in London cannot represent all the illegitimacy of the United Kingdom. But the whole evil — so the writer in the "Britannica" assures us — does not attain proportions beyond what private charities and the Poor-Law funds can easily cope with. The London Home is now practically a private charity, supported by ample endowments, and has only been compared in this sketch with the foundling homes of Moscow and Paris because, for part of its history, it was, like them, the object of government assistance and regulation. It might be argued, by one not in sympathy with the English or "Teutonic" system, that the "private charity" of England puts in the way of the ill-disposed as many temptations to desertion of children, or even to looseness of life, as the public provision of Continental countries. But practical experience seems to show that such is not the case. Private charity is less apt to be lavish and indiscriminate. Then, too, a provision made by government is likely to be more freely taken advantage of, especially in countries where socialistic sentiments are widely diffused, and where the idea that children belong to the State rather than to the family, and that the State should be responsible for them, is familiar.

To an American, of course, the Teutonic system naturally commends itself. And yet, as has been suggested before, what is best for one nation may not be best for another. In a country like Russia, for example, the crowded condition of peasant homes —

grandparents, brothers and brothers' wives, and cousins of all ages, sometimes occupying the one sleeping apartment in common — the long absences of husbands on military service, and the rigid class distinctions, must have tended to develop ideas of morality which seem to us loose and degenerating. Moreover, the general poverty and the autocratic character of the government combine to produce in the people a child-like dependence on the governing power. It may well be that there, a great public charity, like that so admirably conducted at Moscow, meets the conditions of the case better than anything which our Anglo-Saxon thrift and ingenuity could devise.

FIBROID TUMORS AS A COMPLICATION OF PREGNANCY AND LABOR.¹

BY EMMA L. CALL, M.D., BOSTON.

THE frequent occurrence of uterine fibroids in women from thirty to forty-five years of age makes the study of the relation of such tumors to childbirth of great interest to the obstetrician, since on one hand, they may constitute an impossible barrier to delivery, while in other instances they illustrate most remarkably the power of nature to overcome obstacles. It is well known that the position of a fibroid is a most important factor in the difficulty of delivery, those situated near the fundus seldom giving rise to any serious trouble, those in the lower segment of the body giving rise to much more grave complications, while those involving the cervix are the most dangerous of all. Moreover, the variety of myoma is of great importance in reference to the prognosis after delivery. The submucous tumors which are inevitably more or less injured during the birth are most liable to be followed by septicæmia, the interstitial tumor less so, but in their turn more than the subperitoneal variety. Fortunately a fibroid in the lower segment of the uterus usually presents mechanical difficulties in the way of conception, while the submucous tumors also cause sterility by the hemorrhage and endometritis to which they give rise.

The statement is made by some writers, that all forms of fibroids cause sterility. It seems to me that, except in regard to the forms above mentioned, it is more nearly correct to say that sterility is one of the predisposing causes of fibroids.

A fibroid rarely attains any size before the age of thirty-three years, which is late for a first pregnancy in a healthy woman, and therefore it seems probable that some other condition than the growth is the first cause of the failure to conceive. It is also well known that fibroids are especially common in single women, the cause for which seems to be the failure of the uterus to fulfil its natural function.

Moreover, in looking over the cases from which I have compiled this paper, I was struck by the fact that among them there were a good many where marriage took place after the thirtieth year, who became pregnant within a year, the fibroid in such cases being apparently no bar to a prompt conception.

In the 77 cases which I have collected, chiefly from the American, British, French and German journals of the last twelve years, the average age of the 44 primipara was thirty-four and one-half years. The young-

¹ Read before the Suffolk District Medical Society, Section for Obstetrics and Diseases of Women, February 25, 1898.

est of these is twenty-four, and there are only six under thirty years of age, of whom three are colored women, among whom we know the liability to these growths is much greater than in the white race.

The average age of all the cases (where the age was reported) is a little over thirty-nine, the oldest being a multipara of fifty.

The cases which I report from personal knowledge are none of them of the most serious varieties; yet it seems to me worth while to report them, because they are such as are most liable to occur in private practice, and it is well, on the one hand, not to be over-anxious in regard to the result, and on the other, to realize that even the minor forms are liable to lead to complications for which we should be prepared.

The first two cases are chiefly interesting because I have been able to follow them through several years, and more than one pregnancy.

CASE I. Mrs. A. is the patient whose first labor was reported in 1885 by Dr. Chadwick from my notes. She had then a subperitoneal fibroid, the size of a fist, on the anterior wall of the uterus. Labor protracted, delivery by forceps, post-partum hemorrhage. The tumor could not be felt a year later.

Her second labor took place in August, 1885, and was normal in every respect. The tumor reappeared during pregnancy, but was much smaller than before (about the size of an egg), and projected abruptly from the anterior wall. She has never conceived since, and though I have examined her many times, there is no sign of any tumor.

CASE II. Mrs. B. was treated before marriage for retroversion, which was apparently caused by a fibroid tumor, about the size of a pigeon's egg, on the posterior wall of the uterus, right side.

Her first pregnancy occurred at thirty-three years of age. The tumor increased somewhat in size during pregnancy, but the uterus was supported by a pessary and carefully watched until it rose out of the pelvis. Labor was protracted and terminated by forceps after twenty-four hours. Involution very tardy, and the tumor remained about the size that it was before pregnancy. Fifteen months later, her second child was born. Labor lasted fifteen hours, but terminated naturally. Since the second labor I have never been able to find the tumor. She has had two more children, and each labor has been easier and the involution more rapid.

In the two next cases the fibroid was evidently the chief factor of the protracted labor, and in one case had probably been the cause of the previous still-born children.

CASE III. — Mrs. C., mulatto, twenty-four years old, fourth pregnancy. She gave a history of three protracted labors with still-born children, but said the doctors could never tell why the children died. Seen first in labor at the New England Hospital Maternity. Vertex presentation, and pelvic measurements normal. Pains weak and ineffectual. After twenty-four hours, as the child's heart beats became very rapid, the membranes were ruptured, the os being fairly well dilated. The liquor amnii was stained with meconium, and as the head did not at once descend, high forceps were applied and a living child extracted. Upon examination an interstitial fibroid, the size of a large orange, was found on the posterior wall. Convalescence normal. On the fourteenth day after labor the uterine cavity measured two and one-half inches, but the body was still large, and the thickened posterior wall very marked.

CASE IV. Mrs. D., thirty-seven years old, primipara, delivered at New England Hospital Maternity. First stage of labor very tedious. Terminated by forceps, as the patient became exhausted. Adherent placenta. Posterior wall of uterus thick and prominent from an interstitial fibroid. Convalescence normal.

The next case illustrates the power of the uterine contractions to overcome obstacles to delivery.

CASE V. Mrs. E., confined at New England Hospital Maternity in 1885, service of Dr. Zakrgewski. Primipara, age thirty-five. No symptoms of tumor observed by patient before pregnancy.

Irregular labor pains began a week before delivery. At this time three tumors were felt, one posteriorly, filling the pelvis, pushing the cervix up under the pubes, the others near the fundus right and left. The posterior tumor gradually ascended during the pains and allowed the presenting part (a breech) to be reached.

Extraction manual; head extended by the tumor, and delivered with difficulty. Child still-born. Convalescence normal. Three weeks after labor, uterus three fingers' breadth below umbilicus. The largest tumor is now felt filling the anterior cul-de-sac. The others are much smaller.

Cases VI and VII are interesting because of the mistakes in diagnosis to which they gave rise.

CASE VI. Mrs. F., thirty-one years old, second pregnancy, was examined for admission card to New England Hospital Maternity in May, 1890. First labor tedious. She had felt very miserable during this pregnancy, and was sure that her abdomen was much larger than before, though previous to conception she had noticed no difference in size. The house-officer diagnosed twin pregnancy, and recorded hearing two fetal heart sounds.

Examined again June 20th. Abdomen so distended that palpation was not very satisfactory. A distinct sulcus ran from the lower right to upper left side of the abdominal tumor. In each half was felt a solid body which might be a fetus. Fetal heart sounds heard only on the right. A vertex was felt over the pubes, and could be reached per vaginam, though very high up.

Labor began July 12th, and delivery was rapid. I was sent for, with the message that "one child had come but they could not make out the presentation of the second." Upon arrival I found the uterus nearly as large as before delivery, the mass on the left of the fundus being still prominent. Internally nothing could be reached until the hand was introduced into the uterine cavity and found that the mass above mentioned was formed by a fibroid the size of the fetal head (subperitoneal). The uterus contracted well, and convalescence was normal.

Examination, fourteenth day, showed that the uterine cavity measured 8 c. c.; height of fundus above pubes in median line 12 c. c.; width, at level of iliac spines, 11 c. c. The main tumor was on the anterior wall, near the fundus, left side; but internally a lobule, the size of an egg, projected from the posterior wall on the right side.

CASE VIII. Mrs. G., thirty-four years old, four years married. Had been treated for severe endometritis since marriage, but had not been under treatment for some months previous to present history. Menses were due on February 22d. On the 21st took a severe chill, and the next day menstrual pain began with a show of blood, which lasted only a few hours. The pain, however, continued. When seen a few days later the history of cold was apparently so clear that I treated her for suppressed menstruation with sitz baths and hot drinks. The menses did not appear, but the pain continued, and the pelvic tissues became quite sensitive. She was put to bed with hot fomentations, which soon relieved the tenderness. The pain, however, continued at intervals, sometimes moderate at others severe, but never wholly absent. Examination per vaginam showed no recognizable change in the pelvic organs.

On March 22d, just a month from the beginning of this condition, I was summoned in haste to find her looking pale and anxious, with a history of sudden severe pain causing faintness, referred to right side of pelvis. Temperature normal, pulse quick and nervous. Found the body of the uterus apparently pushed over to the left side of the pelvis, with increased resistance on the right. The

patient was too sensitive to make a thorough examination. I suspected ectopic gestation, but as the acute symptoms had subsided put her to bed, with morphine to relieve the pain. The next day, the patient feeling much less sensitive and nervous, an examination showed a small, soft mass, apparently closely connected with right side of the uterus. The uterine body was firm in consistence, the cervix slightly softened. No decisive color of vulva or vagina. The patient was kept very quiet, and watched for a few days. The soft mass on the right enlarged distinctly. The pain had ceased. Soon two small round masses were felt, posterior to the swelling, but apparently closely connected with it. The uterus grew softer. There was a bloody show, but no proper flow; no decidua membrane.

I now requested a consultation, and Dr. Chadwick kindly saw the case with me. After a very careful examination he agreed with me that it was probably ectopic gestation or pregnancy in a bicornate uterus, and advised an exploratory incision. This being consented to, Dr. Chadwick opened the abdomen and found the whole mass to be the pregnant uterus; but in the anterior wall on the left was an interstitial fibroid, precisely the size and shape of a slightly enlarged uterine body, reaching from cervix to fundus, which had evidently caused the right side of the uterine cavity to develop, while the growth of the left was hindered by the unyielding fibroid deposit. The posterior nodules were small subperitoneal fibroids projecting from the posterior wall of the uterus on the right. The question of myomectomy being decided in the negative, the abdomen was closed.

The patient did well for ten days and then miscarried. She made a slow recovery, but a year after was in better health than at any time since her marriage, and the tumors had entirely disappeared.

Turning to the 77 cases which I have tabulated, I find only 12, or 15.6 per cent., of uncomplicated deliveries at term, with recovery of the mother and a living child. Of the 65 abnormal cases there were seven spontaneous abortions, presumably caused by the presence of the fibroid, five induced abortions or premature labors, eight hysterectomies in the early months, one spontaneous rupture of the uterus at the fourth month, one premature labor at seven months.

Of 52 cases where the labor was at term, there were 12 normal and 40 complicated, and in the latter were reported two Cæsarean sections, one Porro, three craniotomies, six versions, eight breech (with manual delivery), 13 forceps, five enucleation of tumor during labor.

It is generally stated that the liability to hemorrhage is greatly increased owing to the inefficient contractions of the uterus caused by the fibroid. We find reported one ante-partum and six post-partum hemorrhages, and one partial placenta previa. It seems to me that this is not a larger number of cases than would be likely to occur in so many complicated labors from any cause.

In 41 cases the fibroid was reported single, in 30 multiple, in six not stated.

Regarding the position of these tumors, there were 21 in anterior wall, 17 in posterior wall, 25 at or near the fundus, 8 cervical, 9 submucous, 13 not located.

In 82 cases, 41.5 per cent., both mother and child survived; 28 mothers lived, the children being still-born. Thus, 55 mothers, or 72 + per cent, recovered. Of the children, 36 were born alive, 21 were non-viable at birth, 15 died during labor; in two cases the fate of the child is not mentioned, while one case had not been delivered at time of record. This gives a mortality of 50 per cent.

This is somewhat more favorable than the mortality of the larger collectors. Thus, Naus reports 222 cases, with 53.9 per cent. maternal, and 57 fetal mortality; Sussnerow, out of 157 cases, gives maternal deaths 50 per cent., children 68 per cent.

These cases are, however, mostly compiled from records of from fifteen to twenty years ago; and it is reasonable to suppose that the improvement in aseptic technique of the last decade would reduce this mortality appreciably. A record of cases occurring exclusively within the last ten years would probably give still more favorable results than those I have recorded.

Of the 20 maternal deaths, 13 are ascribed to septicemia, two to shock and exhaustion; the cause of others not stated, but presumably some form of sepsis.

Of these deaths, eight were those where abortion took place, one hysterectomy, the rest at term.

It is usually stated that myoma decrease, and in many cases disappear after childbirth. To verify this is difficult, since the greater number of reported cases are from hospital practice, where the patient's subsequent history is unknown.

In 18 of these cases only have we any statement of the subsequent history of the growths. In two cases tumors of considerable size disappeared entirely in from two to three weeks. In two cases the tumor nearly disappeared, but reappeared during second pregnancy, to disappear entirely after the second puerperium. Six cases entirely disappeared in periods varying from two months to one year. Three cases "diminished greatly." Two cases diminished greatly during the puerperium, but were not seen later. One case remained stationary. In two cases hysterectomy was performed six and nine months after labor, respectively, for rapid increase in the growth.

I have been much interested in looking over statistics of large numbers of cases of labor, in order to estimate how often this complication occurs.

In 17,000 cases from Schröder's clinic there were only 12, or one in 1,416. From the number of such cases reported in British and American journals, it would seem as if this complication must be more frequent in England and America than in the German clinics, but a report of the Rotunda Hospital from 1889 to 1892, including 3,602 deliveries, with their complications, does not record a single case.

In an article in the *British Medical Journal*, 1890, entitled "Complications of Two Thousand Cases of Labor," the writer gives very full reports of an extensive consulting practice in the north of England, but not one case of fibroids. Again, a report of 1,000 consecutive cases in the Sloan Maternity of New York, and 1,200 cases for the Lying-in Department of the New York Post-Graduate School, does not mention fibroids as a complication in any case.

I have tried to get some reports from Southern hospitals or practitioners, thinking that among the colored population a good many cases must occur, but I have not been able to find any.

It was, however, an interesting fact, that in 1894 in the "Transactions of the New York State Medical Society," and in the "Transactions of the Southern Gynecological Society," this complication was the subject of a paper, in the former, by Dr. Van de Veer of Albany, in the latter, by Dr. Fay of Washington, D. C. Both in the paper and the discussion which followed, the New York members showed themselves

inclined to radical surgical measures, some going so far as to advise that every pregnant woman with a fibroid, however small, should be advised to submit either to a myomectomy or hysterectomy in the early months, while the Southern members almost unanimously showed a disposition to trust to the forces of nature until she proved unequal to the task, showing by this that the weight of their experience led them to do so.

The question of the various methods of treatment, would unduly prolong this paper and therefore I shall not enter upon it.

Clinical Department.

DIAGNOSIS OF PUERPERAL SEPTICEMIA, WITH CASES.

BY EDGAR GARCEAU, M.D., BOSTON.

CASE I. The patient was twenty-two years old, of rather delicate constitution and of slight build. She had been married about a year, and had been delivered of her child after a not unusual labor. For three weeks before confinement she had been feeling rather miserable, but this had not given rise to any special comment, as the discomfort was thought to be due to her condition.

Two days after labor the temperature rose to 103°, but no chill accompanied the rise. General prostration followed, and she was soon very sick. A day later there was a sharp pain complained of in the mammary line at the base of the right chest, and it was worse on deep inspiration. There was also some cough. A year before she had had an attack of pneumonia affecting the right lung.

Her condition six days after labor was as follows: Great prostration, sweating, apathy, vomiting, sleeplessness, breasts flabby and milk secretion stopped, abdomen not sensitive. Vaginal examination negative. Lochia sweet, and of normal amount. Spleen somewhat enlarged. No rose-spots. Lungs: resonance decidedly diminished over right lower base, dullness on percussion here; voice sounds were absent; no râles were heard.

Septicemia, typhoid fever and pleurisy with effusion were considered. Against septicemia was the absence of local signs of this disease. The vagina was normal and the lochia sweet. No focus of infection was discovered about the genitalia. Although the physical examination was negative, yet septicemia was not excluded. The physical signs in the lung were thought to be due to either a septic pleurisy or to an old chronic pulmonary process. The sequel showed that the latter view was correct.

Widal's test gave a negative result. A few days later the patient developed a typical erysipelatous rash which covered the buttocks and the back.

CASE II. The patient was twenty-eight years old, had been married three years, and had had two children. She had always enjoyed previous good health. There was no trustworthy history of any symptoms denoting disease before a miscarriage which took place without apparent cause. The miscarriage was a severe one and the hemorrhage had been so great as to produce a condition of marked anemia.

Three days after the miscarriage she became very sick and her temperature rose to 103°. General prostration and other general symptoms attended the elevation of temperature. There was no chill. Two days later her condition was as follows: profound anemia, vomiting, great weakness, mild delirium, restlessness. Temperature 103°. Examination showed a uterus which was not remarkable on palpation; nor could any evidence of disease be detected in the appendages. The lochial discharge was slightly fetid and rather scanty. The spleen was slightly enlarged. There were no rose-spots.

The case seemed to be one of septic infection following

miscarriage. So ether was given and the uterus dilated. Examination of the uterine cavity with the finger disclosed a portion of placental tissue as large as the forefinger. It was removed with the forceps and the cavity washed out. The operation did no good, however, and she steadily grew worse. Thinking the case might be one of sepsis complicated with typhoid fever, Widal's test was done, and a positive reaction obtained. Two days later, having steadily lost ground, she developed right hemiplegia, and soon died. The hemiplegia developed gradually.

In this case there was no question of sepsis. The typhoid fever was discovered by accident, and undoubtedly was responsible for the fatal issue. It is probable that the miscarriage was, in the first instance, occasioned by the typhoid fever. The case is interesting in that it illustrates the possibility of overlooking typhoid fever in cases of miscarriage followed by septic symptoms. In such cases Widal's test will give valuable information.

CASE III. The patient was twenty-five years old, and had been delivered of her first child six days before. Three days after labor her temperature rose, and coincidentally with this she became very maniacal. She was incoherent, wandering in her speech, and had to be restrained. She was removed to the Austin Farm Asylum, where she was seen six days after the labor. Her condition was poor. Temperature 104°; pulse rapid and weak. Very restless; delirious, but easily restrained. General prostration marked. On examination, the abdomen and uterus were very tender, but there was no tympanites. On vaginal examination, under ether, no focus of infection was discovered. The uterus was curetted, and a small amount of tissue removed. She died on the same night.

In this case the diagnosis lay between puerperal mania and sepsis with delirium. Practically the two conditions cannot be distinguished. Puerperal mania is most frequently favored by four conditions: heredity, moral impressions, anemia, and sepsis. Heredity is particularly considered a potent predisposing cause. Clouston thinks we may have sepsis with maniacal delirium. Among 60 cases of puerperal mania analyzed by him, in 24 the temperature was 99° or under; in 26 it was over 99°; while in 14 it was over 100°. No other form of insanity shows this result. But all the cases of high temperature were not fatal. The causes of the high temperature in these cases were thought to be brain excitement, meningitis, malaria and other incidental causes, and finally sepsis, which was thought to be the principal cause. Clark thinks sepsis accounts for 50 per cent. of the cases of puerperal mania.

If sepsis is present, therefore, a positive diagnosis of puerperal mania is impossible. Some help is given in making the diagnosis by a previous neurotic history; and, if after the sepsis has run its course, the mania persists, the diagnosis cannot be in doubt.

The three cases illustrate very well that there is no positive symptom or sign which can be considered absolutely diagnostic of those cases of puerperal septicemia in which the focus of infection is within the uterine cavity. No difficulty is experienced in arriving at a diagnosis in those cases in which the focus of infection is upon the cervix or in the vagina. Thus, a diphtheritic membrane, or a sloughing perineal wound, taken in connection with high temperature, general prostration, chills and other symptoms of systemic infection, is sufficient evidence of puerperal septicemia in such cases. But in the cases in which the cervix and vagina are normal in appearance, and in which severe general symptoms are present, it may be neces-

sary to study the case most carefully before arriving at a correct conclusion as to the nature of the disease.

Reviewing the usual symptoms of puerperal septicemia we find that the disease is, as a rule, ushered in by a chill or by chilly sensations. Rapid elevation in temperature follows, milk secretion is stopped, sweating occurs, vomiting may be present, and pains across the abdomen may or may not be complained of. Looking at these symptoms, we find nothing characteristic of septicemia; and grouped together they may be indicative of many diseases, as they are the symptoms of general systemic disturbance only. If the sepsis has started in the uterine cavity, as a general thing the lochia will be both scanty and offensive, yet the foul odor is not always present, and its absence is not to be considered conclusive. Bumm studied 750 cases of labor, in 22 per cent. of which there was a rise in temperature. In 16 per cent. the fever was shown to be due to causes not related to labor; in 29 per cent. no cause could be found; in the remaining 55 per cent. the fever rose from infection of the genital tract. This result shows that in only a little more than half the cases in which there is a post-*puerperal* rise in temperature is the rise due to sepsis, leaving a large number to be accounted for by some other disease. This study is an important one, and shows that needless alarm need not be felt at elevation in temperature after labor.

To enumerate the diseases and conditions which may give rise to an elevation in temperature after labor would be to discuss a great variety of diseases. Among the non-infectious conditions may be mentioned what is called emotional fever. This gives an elevation in temperature which is due to some sudden shock to the nervous system, such as fear or fright. It rapidly subsides. Constipation has been known to cause fever. So also may the influence of reflex action. Hirst mentions a case in which continued high temperature was due to the presence of a tape-worm in the intestines.

Intercurrent affections may likewise give rise to fever in the *puerperal* state. Among these may be mentioned pneumonia and pleurisy. If the latter is diagnosed, the possibility of its being of a septic nature should be borne in mind. Scarlet fever is not uncommon. The point of entrance of the disease may be the vagina. A correct diagnosis may be suspected if the physician has been treating cases of scarlet fever in his practice. The incubation period in the *puerperal* woman is three days as against five or seven days in the non-*puerperal*. In some cases, according to Boxall, the ordinary signs of scarlatina are absent, or so slight as to escape observation; in these cases the symptoms are usually referred to septic poisoning. The diagnosis may, therefore, be very difficult if not impossible.

Puerperal erysipelas has given rise to much discussion as to its nature and its relation to *puerperal* sepsis. Hirst states that there is indubitable proof that the poison of erysipelas when introduced into the genital canal of a parturient woman may produce a virulent form of sepsis without manifesting externally the rash which is commonly supposed to be distinctive of the disease. Yet Gusserow opposes this, and draws his conclusions from experiments on animals with *Fehleisen's streptococcus*. He was unable to produce infection of animals by inoculating the microbes into the peritoneal cavity. The main weight of evidence, however, is in favor of there being a decided relation

between erysipelas and *puerperal* sepsis. In the case cited (Case I) clinical evidence appeared to show that the erysipelas went through its usual course without giving rise to signs usually present in cases of *puerperal* septicemia, unless we suppose that the infection was strictly intra-uterine. Wiinkel has seen 42 cases of erysipelas during pregnancy and the *puerperal* state: 36 of these occurred after delivery, six occurred during pregnancy. Of the 36 cases occurring during the *puerperium*, 28 began in the genitalia. Hirst believes that a large number of cases of *puerperal* septicemia may be traced to the poison of erysipelas in which there is no external manifestation of the disease.

The diagnosis of malaria during the *puerperium* is best accomplished by examining the blood. And in this connection the subject of typhoid fever may be discussed. If this disease has pursued a mild course, its presence may escape detection; and the symptoms to which it gives rise being so nearly identical to those of septicemia, it is easy to see how the two diseases may be confounded. Furthermore, it is possible that the two diseases may coexist in the same person, as Case II shows. It should likewise be borne in mind that the typhoid fever may be the cause of a miscarriage. This adds to the difficulty of diagnosis. Yet in such a case valuable evidence may be secured by careful questioning as to the immediate previous history of the case. Finally, in cases in which there is a suspicion of the disease we have in Widal's test a satisfactory and conclusive means of diagnosis, which should be employed in all cases of doubt.

Lutaud describes a form of disease which he calls *puerperal herpes*, occurring between the second and the fifth day after confinement or abortion. In the cases reported the febrile attack was ushered in by a chill and the pyrexia severe, rising to 103° to 104°, the fever rapidly subsiding after the appearance of the herpes. Lutaud calls attention to the disquieting nature of the symptoms and their liability to be confounded with grave septic infection.

Enough has been said to show that post-*puerperal* rises in temperature need not be considered with the great alarm that is usually occasioned, and that they do not necessarily mean septicemia. The conclusion offered is that, in view of the great difficulty of diagnosis in many cases, on account of the similarity of symptoms which are characteristic of so many diverse diseases, the diagnosis of *puerperal* septicemia should in all cases be made by exclusion.

Reports of Societies.

MASSACHUSETTS MEDICAL SOCIETY.

ONE HUNDRED AND SEVENTEENTH ANNIVERSARY.

At the Section on Surgery, which met on Tuesday, June 7th, the following papers were read:

"The Pathology of Certain Surgical Diseases of the Bones and Joints," by DR. E. H. NICHOLS, of Boston.

"The Question of the Curability of Cancer of the Breast," by DR. J. C. WARREN, of Boston.

"Tetanus and its Treatment," by DR. F. B. LUND, of Boston.

"Corrections by Operation of some Deformities of the Nose," by DR. G. H. MONKS, of Boston.

At the Section in Medicine the papers were —

"Antitoxin in the Treatment of Diphtheria," by **DR. J. H. MCCOLLOM**, of Boston.

"The Toxin of Diphtheria and its Antitoxin, According to Recent Experimental Investigations," by **DR. THEOBALD SMITH**, of Boston.

"Recent Advances in the Bacteriology of Typhoid Fever," by **DR. M. W. RICHARDSON**, of Boston.

"Epidemic Cerebro-Spinal Meningitis," by **DR. A. H. WENTWORTH**, of Boston.

The Shattuck Lecture was delivered by **Sir William H. Hingston**, of Montreal, on

THE INFLUENCE OF THE CLIMATE ON THE NORTH AMERICAN PEOPLE.

The papers read before the annual meeting on June 9th were the following:

"Types of Habit Neuro-Psychoses," by **DR. E. W. TAYLOR**, of Boston.

"Formaldehyde Gas as a Disinfectant," by **DR. D. D. BROUGH**, of Boston.

"Treatment of Neurasthenia and Hysteria," by **DR. MORTON PRINCE**, of Boston.

"The X-ray in Medical Practice," by **DR. F. H. WILLIAMS**, of Boston.

"Some Modern Methods of the Treatment of Phthisis and its Symptoms, and What is to be Avoided (illustrated with lantern slides)," by **DR. E. O. OTIS**, of Boston.

The Annual Discourse was delivered by **DR. WILLIAM T. COUNCILMAN**, of Boston, whose subject was

THE INFLUENCE OF PATHOLOGY UPON PRACTICE.¹

At the Annual Dinner, which followed the discourse, the President, **DR. H. P. WALCOTT**, made the following Address:

The medical year which is drawing rapidly to its close has been, upon the whole, a fortunate one. No grievous pestilence has prevailed in the land, the general conditions of health in our State have been exceptionally good, and the affairs of the Society have prospered.

We have, indeed, no startling discoveries in our art to celebrate, nor have we found in the allied sciences any new or unexpected means of assistance. There have, however, been everywhere applied, in hospital, in laboratory, and in general practice, a closer study of the conditions of the human body in health and disease, and a larger experience with the newer remedies has been acquired.

The antitoxin of diphtheria has been very extensively used under circumstances that give us much of the certainty of an experiment in the laboratory; and, in this State, a death-rate from this disease which once reached 30 per cent. of all those attacked has been reduced to less than 10 per cent. It is a joy to think of the many happy homes that have been saved from the desolation which inevitably followed this most intractable malady, and it is a source of even greater satisfaction that we may rightfully expect to soon possess similar remedies against diseases of even greater importance.

This discovery was not accidental; it was the result of long, patient, and extremely intelligent observation and experiment, and required the resources of well-equipped biological laboratories; and it should be

the business of this Society to encourage by all the means in its power the maintenance of the highest scientific standard for the practitioners of medicine.

At the same time it is of even greater importance to the community as a whole, that the physician should be a trained scientific observer. The cost of these higher institutions of instruction in medicine is great, but even at the lowest valuation of the lives saved in one epidemic of diphtheria the gain vastly outweighs the expenditure.

The act of incorporation of this Society in the year 1781 began with the following words: "As health is essentially necessary to the happiness of society, and as its preservation or recovery is closely connected with the knowledge of the animal economy, and of the properties and effects of medicines." . . . In later sentences it declared, "And whereas it is clearly of importance that a just discrimination should be made between such as are duly educated and properly qualified for the duties of their profession, and those who may ignorantly and wickedly administer medicine (whereby the health and lives of many valuable individuals may be endangered, or perhaps lost to the community)." . . .

True to the lines of activity thus traced for the Society, a successful effort was made a few years since to establish a board of registration whose function should be the examination and certification of persons found to be qualified for the practice of medicine. The board both by its constitution and its inclinations has, at no time, attempted to interfere with the methods of cure employed by any sufficiently educated practitioner. An attempt was made by this board, whose useful history had justified the wisdom of its appointment, to secure from the present legislature some extension of the powers of the board.

The customary hearing before a committee of the legislature brought to the State House the persons interested in those methods of healing which, however profitable they may be, have never yet been admitted to the course of study in any institution of learning, and, indeed, which have never sought for admission there. There was some talk of a liberty, which seemed only to mean a determination to be ignorant of all that science can teach us, and much eloquent denunciation of the tyranny of those who seek only to improve the medical police functions imposed upon practitioners of medicine by existing statutes. The recommendations of the Board of Registration did not receive the approval of the committee of the legislature.

No competent physician is injured by the impostures of the charlatan and the quack, even though, in the words of Sir Thomas Browne, "they be full of cruelty and worse than any other, deluding not only into pecuniary defraudations, but the irreparable deceit of death."

If the medical profession were looking only to a pecuniary profit in such legislation, it would undoubtedly decline to again approach the legislature in this cause, and might well declare that it is the business of the community to secure such protection as it desires.

We cannot, however, wholly escape from an obligation which rests more heavily upon us than upon other responsible members of society, and must, each in his own sphere, contribute what we can of our special knowledge of disease and its rational treatment.

For a whole generation there has been no occasion

¹ See page 557 of the Journal.

in this Society to consider the medical aspects of war. We are again, however, called upon to bring the relief of medicine to men wounded in battle and suffering from the diseases of the camp. The student of the hygiene of armies needs not to be told that up to the time of the great war no such humane provision for the sick and wounded had ever been made. Let us see to it that under the serious conditions imposed by the present struggle we make a like improvement upon the more recent and better experience acquired in the later European wars.

For the first time in history the German army in the war of 1870 lost fewer men by disease than it did in battle. The best experience before that had been in the armies of the United States during the War of the Rebellion, when the deaths from disease outnumbered those killed in battle or dying from wounds by more than two to one.

The diseases of the camp belong essentially to the class of preventable diseases, and the country cannot excuse itself if they are not prevented.

The surgeon is a non-combatant, better protected than ever before by the consent of all civilized nations and under the protection of that ever-victorious banner which bears the Red Cross of Geneva; but the heroic names of Revere, Ware, and many another from our ranks are proof that the attendant on the wounded seeks not nor finds exemption from death while engaged in his merciful task.

What better example of the best in our profession can I propose to you than him who, unmoved in the fierce tumult of battle, seeks only to relieve a sufferer's anguish, and humbly claims for himself as did the great father of military surgery, "I have dressed his wounds, but God has cured him."

The President then called upon SIR WILLIAM HINGSTON, of Montreal, who alluded to his presence at former meetings of the Society and of the pleasure with which he remembered his reception, which led him to predict that he expected to be invited to a subsequent meeting. He said that inasmuch as his lectures were always clinical, he was used to having a patient before him presenting a lesion, such as a fracture or dislocation about which he could frame his remarks. He was unable to find any flaw or lesion, traumatic or pathological, in the remarks of the previous speaker, Dr. Walcott, which he could seize upon as a subject, and consequently felt somewhat at a loss. He could not help feeling, however, in the presence of such an assemblage, the value of such meetings, with the social intercourse and interchange of views which they made possible, to the medical profession. The country physician was apt to regard the city consultant as a different order of being from himself, as not having to meet the same problems in his daily life. These meetings make it possible for all classes of the profession to become acquainted with each other; and there is no question but that they result in increased respect of each for the other. The city physician gains increased respect for the country doctor; each learns from the other points which are of value in practice.

Speaking of English and Canadian sympathy with the United States in the war now in progress with Spain, he said:

"In the struggle in which you are now engaged, it is a matter of great satisfaction to read the expressions of good will for America which are made in the press of Great Britain. We wish you all success, and we

all hope that the struggle may be as short as possible, and that peace may soon return. When America suffers, she suffers not alone for the whole world suffers with her."

REV. FRANCIS G. PEABODY, Plummer Professor of Christian Morals in Harvard University, spoke of the great changes in medical practice, particularly in the direction of specialism which recent progress in medical and surgical science had brought about. He spoke with appreciation of the wonderful results in the saving of life which the skill of great specialists had made possible, and paid a warm tribute to the knowledge, devotion, courage and self-sacrifice of the general practitioner, who was obliged in his daily practice to cope with all the emergencies of the various specialties. He paid a warm tribute to the character of Dr. Morill Wyman, of Cambridge, who was present as a guest at the dinner. The character of the country doctor's work was well expressed, he said, in a recent advertisement which he had seen in a daily paper: "Wanted. A good strong horse to do the work of a country doctor."

"In the midst," he said, "of the wonders of the new time and of its marvellous results, let us honor the work and service of the rank and file. It is a good thing to have the name of the admiral on the lips, but it is also well to think of the men who fought the battle that Dewey planned. And while the name of the young naval constructor arises to the lips, it is well to know that hereafter Hobson's choice is to mean the choice of life or death that his friends might live to win the victory—to think, too, of the jackies at the guns and of the stokers away down in the hot, sweltering firerooms. So in the medical profession, while we love to honor the great names which naturally come first to the lips, let us not forget the loyal, patient, untiring country practitioner."

PRESIDENT ELIOT, of Harvard, spoke of the great changes which were taking place in medical education, and particularly of the great value of the training of the eye and hand made possible by laboratory work. The laboratory should form a far more important part of the education of the student than the didactic lecture. He had observed with pleasure that the Harvard Medical School had in recent years been converted into a nest of laboratories, but he noted with regret that there were still some lecture-rooms there. He spoke of the advantage which would accrue to the profession if young men who were well-to-do, and would therefore not be dependent upon their professional incomes for the support of their families, would enter it with the intention of devoting themselves to scientific study. He said he had talked within the past twenty-four hours to a number of young men who had expressed a desire to join "Roosevelt's rough riders." "They are free to go, they say; there is no one dependent on them; they desire to go; and they will go. That same spirit, which is a noble spirit, is what we want to recruit the medical profession—a class of men of well-to-do circumstances, who, not dependent upon the income from their profession at the beginning, may devote their time to higher study and investigation."

MR. HEMAN W. CHAPLIN, who spoke for the legal profession, alluded to the select character of the assemblage which he was addressing. He was obliged to note the absence of the Kickapoo Indians, the Faith Curers, and other professors of the healing art, whose active practice of their profession was kept before the

public in the advertising columns of the daily papers. He spoke of the hold which certain irregular practitioners seemed to have upon a certain class in the community and even of a certain advantage which they sometimes possessed over the regular physicians. This had been illustrated in his experience by a certain "herb doctor" in a little town on Cape Cod, who was frequently called in consultation by families in cases which had not yielded to the treatment of the regular physician of the village. If the patient got well the "doctor" got all the credit; if he died, then it was recognized that not even his occult powers could save him.

Alluding to President's Eliot's desire that well-to-do young men who would not be dependent upon their professional incomes should enter medical practice, Mr. Chaplin said that the legal profession was overcrowded with young men who had neither practice nor prospects of it. One of these had recently told him he would almost be willing to pay any client who would accept his services. If President Eliot would like a supply of these young men, who in his opinion constituted about thirty per cent. of the recent graduates of our law schools, he thought he could furnish him as many as he wanted in lots to suit.

Among the guests of the Society at the dinner were Dr. Morrill Wyman, of Cambridge, and Prof. Edwin Klebs, of Chicago.

After the dinner about two hundred members of the Society went on an excursion down the harbor.

A pleasing feature of the dinner was singing by a glee club led by Dr. R. C. Cabot, and largely composed of members of the Society who were former members of the Harvard Glee Club.

THE MASSACHUSETTS MEDICAL SOCIETY.

COUNCILLORS' MEETING.

THE annual meeting was held at Mechanic Building, Boston, on Tuesday, June 7, 1898.

The meeting was called to order at five P. M. by the President, Dr. Henry P. Walcott. One hundred and twelve Councillors indicated their presence by signing the roll.

The Secretary read the names of 181 Fellows admitted since the last annual meeting, and of 81 whose deaths had been recorded.

It was voted, on recommendation of the Committee on Membership and Finance, that \$3,000 of the surplus in the treasury be distributed among the district societies.

The Committee on Publications reported that Dr. James J. Putnam, of Boston, has been appointed to deliver the Shattuck Lecture at the annual meeting of the Society in 1899.

On motion of Dr. E. G. Cutler it was *Voted*, That a committee of three be appointed to draw up rules for the guidance of physicians in advising schools in reference to their behavior towards pupils exposed to contagious diseases. The following were appointed to constitute the Committee: Drs. E. G. Cutler, J. H. McCollom, J. F. A. Adams.

The Committee on Nominations reported, and the following were chosen officers of the Society for the ensuing year: President, Dr. Edwin B. Harvey, of Westboro; Vice-President, Dr. Maurice D. Clarke, of

Haverhill; Treasurer, Dr. Edward M. Buckingham, of Boston; Corresponding Secretary, Dr. Charles W. Swan, of Boston; Recording Secretary, Dr. Francis W. Goss, of Roxbury; Librarian, Dr. Edwin H. Brigham, of Boston. Dr. Edward H. Bradford, of Boston, was chosen Orator for the annual meeting of the Society in 1899.

Voted, That the next annual meeting of the Society be held in Boston on the second Wednesday in June, 1899.

The following Standing Committees were appointed:

On Arrangements, Drs. P. Thorndike, J. E. Goldthwait, M. Storer, S. Crowell, W. H. Prescott, F. G. Balch.

On Publications, Drs. O. F. Wadsworth, G. B. Shattuck, H. L. Burrell.

On Membership and Finances, Drs. F. W. Draper, E. G. Cutler, L. R. Stone, F. W. Goss, W. Ela.

To Procure Scientific Papers, Drs. H. P. Bowditch, F. H. Zabriskie, H. L. Burrell, F. W. Chapin, C. W. Townsend.

On Ethics and Discipline, Drs. G. E. Francis, F. C. Shattuck, C. G. Carleton, E. Cowles, J. F. A. Adams.

On Medical Diplomas, Drs. H. E. Marion, E. N. Whittier, O. F. Rogers.

On State and National Legislation, Drs. E. B. Harvey, H. P. Bowditch, T. H. Gage, S. D. Presbrey, S. W. Abbott.

SUFFOLK DISTRICT MEDICAL SOCIETY. THE SECTION FOR OBSTETRICS AND DISEASES OF WOMEN.

C. H. HARE, M.D., SECRETARY.

REGULAR Meeting, Wednesday, February 23, 1898,
DR. F. W. JOHNSON in the chair.

UTERINE CUTTING FORCEPS.

DR. W. L. BURRAGE: This instrument I devised some months ago for the purpose of removing pedunculated or submucous fibroids from the fundus of the uterus. I had an opportunity to use it on a case this morning, and I will say a word or two in description of the instrument, and then I will say a word or two as to the case. The forceps is some nine and a quarter inches long, and has a lock here two inches from the cutting end, and is made quite stout. The handles are made like the uterine scissors of Jacobs; some spring to the handles, very little spring to the blades. The cutting surfaces are three-eighths of an inch wide, and the ends are one-half inch wide being ground so as to protect the operator's finger. The blades are fenestrated so that the forceps will not become clogged with the tissue as it is removed. The purpose is to have the blades take hold and bite and pinch off the tissue. I first thought of getting it up in operating with another operator some months ago on a case of soft fibroid, a large one situated at the fundus. I was impressed with our lack of instruments to remove growths situated in this region.

As many of you know by experience when you get hold of softer tissue with the vulcellum forceps the forceps tear out. When you take hold with the ordinary hemostatic forceps, if you take hold of a small piece, the forceps pinch and crush the tissue; if you take hold of a larger piece the forceps slip off. There is nothing to use for such cases, particularly where the

growth is situated at the fundus of the uterus. Where it is low down, one may use the curved scissors; and if at the fundus, one may use the right-angled scissors if there is room enough for them to work, but you run the danger of cutting through into the peritoneal cavity. You know the spoonsaw of Thomas and the danger that went with its use. Latterly with the technique perfected by the Frenchmen in the morcellation of fibroids it is unnecessary to have anything beside the vulcellum forceps; but in softer tissues, as I have said, the vulcellum forceps does not work very well.

The case I saw this morning, through the kindness of Dr. Kingman; and which I had the chance to help him operate on, had a uterus which might be represented here something after this fashion: It was the case of a young working-woman, twenty-seven years old, who had had very severe flowing; she flowed twelve days each month, and latterly had been flowing a large part of the time. She had a retroverted uterus, for which a practitioner in New York had inserted a pessary, which had caused some ulceration in the vagina without relief of symptoms, and she had recently been curetted by a prominent practitioner here in Boston in his office without ether, without relief of the flowing. She had a large uterus, some four and a half inches deep, retroverted and the ovaries prolapsed, one somewhat enlarged and cystic. The uterine cavity was dilated so that it admitted the finger, and at the fundus of the uterus could be felt this fibrous nodule, the size of a pullet's egg, projecting into the uterine cavity. It was directly at the fundus, and could just be touched by the examining finger introduced through the cervix. That was the sort of case I had in mind when I got up these forceps. One could get hold of the tumor with the vulcellum, but could not enucleate it. The cutting forceps were introduced through the cervix after this fashion, and opened, and a piece of the tissue seized and bitten off; and then piece after piece was seized with the forceps and cut out; and, finally, the entire growth was removed, and a little roughened surface was left where the tumor had previously been. The forceps worked very well indeed, and I was much pleased with the way it behaved. There was comparatively little hemorrhage. There was a very abundant growth of fungous tissue all over the uterine cavity that was previously curetted, leaving the walls quite smooth. No further growth could be felt in any other part of the uterus, inside or out, and I am in hopes the operation has proved successful.

TRANSFUSER FOR INJECTING ARTIFICIAL SERUM.

DR. C. G. CUMSTON: I should like to present to the Society a transfuser for injecting artificial serum, and which is perfectly aseptic. It is not intended so much for use in private practice as for hospital use. It is simply an ordinary burette holding 300 c. c. of solution. I have used, for the past eighteen months, a concentrated serum in preference to the normal salt solution, and think it works far better and more rapidly than the ordinary serum. Several tubes of 300 c. c. each may be injected in twenty-four hours, according to the urgency of the case and the symptoms. It is a simple graduated burette with a stopcock with a rubber tube, and on the end you put the needle. The atmospheric pressure, when you take out the cork, is quite sufficient to allow the solution to run into loose subcutaneous tissue. A formula I have been using is

composed of one gramme of chloride of sodium and two grammes each of the glycerophosphate and sulphate of sodium. It is a combination of Hyem's formula and the formula of Audebert of Bordeaux. The glycerophosphate seems to act very rapidly on the nervous system in cases of shock.

THE PRESERVATION OF PATHOLOGICAL SPECIMENS.

DR. F. W. JOHNSON: I am sorry Dr. Whitney is not here to-night. He was to describe the method now used in the Warren Museum for the preservation of pathological specimens. When preserved in this fluid they retain more nearly their natural color and shape than when preserved in alcohol and other solutions. It is the Kaiserling method. Probably all of you have seen it in print, and I will pass round the specimen with the formula which Dr. Whitney kindly sent. It is a case of fibromyoma of the uterus with double hemato-salpinx. On one side the tube ruptured and let out the blood; on the other side the blood is still there, and its colors are well preserved. The specimen has shrunk somewhat, but not very much, and the color is very much better than if it had been kept in alcohol. It was removed on the 31st of last December.

CALCAREOUS CHANGE IN AN INTERSTITIAL FIBROID.

This other specimen I brought to show the calcareous change that had taken place in an interstitial fibroid in the centre of this mass. It was removed day before yesterday from a woman fifty-six years of age, and removed for pain. The menopause occurred two years ago, since which time she has flowed none. The left Fallopian tube had become twisted round, so that the tube and ovary were adherent to the bladder and anterior parietal peritoneum, and the whole covered by omentum which was universally adherent to the anterior parietal peritoneum. The intestines were also adherent to the left ovary. It is hard as stone.

DR. MARCY: The uterine tumor presented is interesting and, in my experience, unique in character. The history of the patient is briefly as follows: Mrs. B., aged fifty-eight, was a healthy, well-developed girl, married early in life. She suffered the loss of the perineal structures at the delivery of her only child, about twenty-five years ago. At forty a moderate-sized uterine fibroid was discovered, but she was informed that this would disappear at the climacteric. Menstruation continued until about fifty. For some years she has been in large degree an invalid, because of dragging pains in the pelvis when standing. She had great difficulty in passing urine and in defecation. During the last few months she had grown rapidly worse, with marked abdominal enlargement and very decided nervous symptoms.

She was seen by me two weeks prior to the operation. There was a most pronounced cystocele, protruding and extending the vulva. A rectocele was also very pronounced. The abdomen was greatly distended and rendered much more than usually sensitive, because of a large umbilical hernia with its adherent contents.

The operation was performed February 20th, in which I was assisted by Dr. Ferguson, of Troy, N. Y. There were sixteen pints of light wine-colored fluid free in the abdominal cavity. The incision was extended above the umbilicus. The sac of the umbilical hernia was excised and a portion of adherent

omentum removed. The uterus was symmetrical in shape, its surface nodulated by an immense number of small uterine fibroids, everywhere disseminated through it. Petechial infractions of the peritoneum were numerous over the uterus and upon the sides of the abdominal wall, the probable cause of the bloody exudate which coagulated upon cooling. The uterus was removed without special difficulty, the cervix closed over by peritoneum; the abdominal wall was sutured in layers, and the wound closed and sealed without drainage.

Immediately following the abdominal operation, I restored the perineal structures in my usual manner. Upon section, the uterine wall is found to be uniformly thinned to about an inch in diameter and everywhere studded through with hundreds of minute uterine myoma, loosely encapsuled, the largest of which are about the size of walnuts. The uterine cavity is filled with a growth which arises from the posterior wall of the fundus, from a base of about three inches in diameter. From this a large number of growths proceed, each independent from the other except at base, lying closely compressed upon each other, three to four inches in length. They are of a light grayish color, having an exceedingly thin investment membrane, and very easily broken by pressure. The general disposition of this growth, forty to fifty segments, is very like a bunch of bananas. The uterus and tumor weighed three pounds.¹

DR. EDGAR GARCEAU read a paper entitled

DIFFERENTIAL DIAGNOSIS OF PUERPERAL SEPTICEMIA, WITH CASES.²

DR. CHADWICK: It seems to me, Mr. President, that Dr. Garceau's paper is very valuable, as calling our attention to causes of fever in childbed which we are apt to overlook. Everything nowadays is septic infection and we have almost forgotten to look for other things. I do not think, of course, that a definite diagnosis can always be made, any more than Dr. Garceau does; but in old times we used to have more septic fever after childbed, and I got to regard a chill, sudden rise of temperature and generally entire absence of abdominal distention and abdominal pain as quite characteristic of septic infection. I certainly had a good many cases in the early days with those peculiarities; the absence of local tenderness or pain impressed me very much. The symptoms invariably subsided, in my experience of 18 or 20 cases, if disinfection of the uterine cavity was effected soon after the initial chill, and they all ended in recovery. The cases I saw in consultation — late, perhaps, after distention of the abdomen had supervened — were pretty generally fatal. The early cases were always treated by the intra-uterine douche before the day of the curette; and, as far as I know, they did just as well as they now do with the curette. Differentiation in diagnosis of puerperal mania and puerperal sepsis, with maniacal or mental symptoms, is extremely difficult. The case to which Dr. Garceau alludes as having gone to the Austin Farm I happened to see in consultation the day before. The woman was, I think, of French parentage; had married without the

sanction of the church; had a civil marriage; had a year afterwards been delivered of this child under very strict antiseptic precautions, and two or three days afterwards, suddenly, without much of any elevation of temperature — I am quoting from memory — without chill, without any discharge or local tenderness or anything whatsoever, suddenly became maniacal; and, in my judgment, the case was puerperal mania, and not due to sepsis. I, of course, should hold that opinion subject to revision, but that was my opinion at the time. Dr. Garceau, seeing her later and probably getting a somewhat different history, — quite naturally thought it might be septic, and I am not sure but what he was right in curetting. I hesitated myself whether it should be done. But these cases are extremely difficult to differentiate.

DR. CALL: I have seen two or three cases which interested me very much on account of the difficulty of diagnosis. I reported them to this Society last year. They were cases of acute tuberculosis, in which the symptoms resembled those of sepsis so closely that the diagnosis was not made for some time. In fact, in one case it was not made during life; another of abdominal tuberculosis was made by the exploratory incision; the third developed symptoms of pleuritic effusion, which was supposed to be septic, until upon aspiration the serum was found to contain the bacilli. This case subsequently recovered. Therefore acute tuberculosis is one of the diseases we should bear in mind, as Dr. Garceau suggests, before deciding that the case is septic.

DR. S. H. AYER: I should like to say a word about the treatment of puerperal sepsis. When I was a house-officer at the Lying-in Hospital some twelve or thirteen years ago, I was very much impressed by the use of iodoform in such cases. At that time we had quite an epidemic of the disease; and I remember very distinctly four cases of the diphtheritic variety, all of which were very ill indeed, and which were apparently going from bad to worse under treatment by intra-uterine douches of corrosive sublimate, which cases finally began to improve and eventually recovered under this treatment: it simply consisted of a block-tin tube similar to that used in intra-uterine douching, with the end cut off; which tube was connected with an ordinary powder-blower filled with iodoform. The patient was first given a cleansing douche and the tube passed to the fundus of the uterus, the patient being on the back at the time, and a bivalve speculum being used. The powder was then blown to the fundus of the uterus and the tube gradually withdrawn. There were no precautions taken as to the amount of powder that was blown in; and although the danger of air embolism was considered, no such complication ever occurred. These four cases, all of which were extremely ill, recovered, and they impressed me very much. Since that time the treatment, of course, has changed, and the use of the curette has come into play largely; and I have questioned at times whether the best treatment of puerperal septicemia was the use of the curette, whether it did not open up avenues for further infection; and certainly, if the curette were not in the hands of one accustomed to manipulating it, there might be more danger in its use than in leaving it alone.

DR. CUMSTON: It occurs to me that there is one point in the treatment of women after their confinement which is very often overlooked. Occasionally

¹ March 18th. The specimen has been presented to the Warren Anatomical Museum, and Dr. Whitney pronounces it a very rare form of malignant adenoma, arising from the endometrium. It will be preserved as an illustrative specimen. The patient is sitting up, and is soon to return home. She has made an uneventful and easy recovery.

² See page 567 of the Journal.

we have a slight chill and rise of temperature on the second or third day following labor, although it may be perfectly normal and non-instrumental; and in such cases it has been my experience to find that the woman has been kept flat on her back. It has been my practice for some time to have patients sit up in bed after the first twenty-four hours in order that there may be a regular drainage from an inclined plane so that all the lochia would drain immediately from the uterine cavity and not collect therein. I think that retention of the lochia within the uterine cavity is a frequent cause of sapremia, not septicemia.

DR. MARCY: I have treated a good many cases with the use of the curette. I never hesitate to use the curette carefully; and I believe the variety with fine teeth—spoonsaw curette—is worth more than any other curette we have. It does not cut as deeply into the tissues as the sharp cutting curette, and removes irregularities of the uterine surface, certain portions of necrotic structure, better than anything else I know. After thoroughly cleansing the endometrium, I consider it important to rub into the abraded wall of the uterine cavity iodoform freely. If infection has not gone too far, this will prove efficient. The difficulty is, this is often done too late after the foci of disease are beyond the uterine cavity. Then, of course, whatever you do locally is only palliative.

DR. EMMA L. CALL read a paper entitled

FIBROID TUMORS AS A COMPLICATION OF PREGNANCY AND LABOR.²

DR. CHADWICK: This subject was the title of a paper I read before the Massachusetts Medical Society some ten years ago, giving about twelve cases. Since then I have seen half-a-dozen cases. The opinions I expressed at that time I have not seen occasion to change especially. They are pretty well set forth by Dr. Call, that is to say, my impression is that in about two-thirds to three-fourths of the cases you can depend upon the fibroids practically disappearing within a year following delivery. They may reappear. When I say disappear I mean disappear so that you cannot recognize them by the touch. I think in some cases it has been evident that the uteri have been a little larger than would be normal, from which I inferred that a little bit of the fibroid probably did persist; and true it is that in subsequent pregnancies they usually reappear. If we can count upon two-thirds or three-fourths of fibroids existing at the time of labor disappearing a year following labor it is a pretty safe thing to let them alone and not think of cutting out the fibroids or cutting out the pregnant uteri. I have seen only one case in which any serious injury or a fatal result followed the labor. I have seen atony of the uterus, that is to say, a protracted labor in some cases, the uterine muscles acting less effectively to expel the child; and subsequent to expulsion I think there is apt to be more hemorrhage than is normal and sometimes even alarming. I have seen in some cases premature labor. The only case which ended fatally was one I put in charge of the late Dr. Dow, of Somerville, where after labor there presented at the os, and even at times protruded through the os, a fibroid as large as a cocoon; she became septic. I saw her perhaps a week after labor—it was before the days of these radical operations—and I thought the safest plan was to disinfect the uterine cavity with douches

as fully as we could. I am not sure but that was an erroneous decision, but at the time it seemed wise; that was ten or twelve years ago, prior to the reading of my paper. Of course, if a fibroid is held immovably below the brim of the pelvis, there is very little chance of delivering a child past it; then more radical measures have to be taken. In all but one of my cases the fibroids were above the pelvis; in that one the tumor at the time of labor was lifted above the pelvis. So that I have not had to remove the pregnant fibroid uterus in any of the cases I have seen; and, as far as I know, there has been but one fatal result.

DR. MARCY: First, I would commend the reader for her valuable paper. Two illustrative cases come to me at this moment that are interesting and instructive. The first, a patient with continued hemorrhage after delivery, not controlled by all the efforts of the attending physician. Upon dilating the partially constricted cervix we removed a fibroid tumor, quite a fist's size, from the posterior wall of the uterus. The second is even more interesting. A woman upon whom I advised hysterectomy because of a uterine myoma perhaps, the size of a large cocoon or fetal head, after a time became pregnant. It went on to full term, and she was taken in labor. After about forty-eight hours of unsatisfactory effort the cervix dilated in such a way that the attending physician thought he was able to deliver. His attempts to put on forceps failed, but he was able to turn, and made an extraction to the neck, when unfortunately it separated and the head was left in the uterine cavity. At that stage of affairs I was called to assist. The patient was, of course, greatly exhausted, having lost a good deal of blood; but it seemed there was nothing to do but an immediate hysterectomy. I removed the uterus and the fibroid, and the patient died eighteen hours later. I showed the specimen here two or three years ago, with the head still *in utero*, and the tumor was considerably larger than the uterus with the retained fetal head—perhaps the size of an adult head.

I have several times advised and induced abortion for fibroid tumors. It seems undoubtedly that the whole question of determining what to do in this not very rare class of complications is based upon the location of the tumor itself, its size, rapidity of its growth and the conditions of probable mechanical interference in delivery. There can be no doubt but that the pregnant uterus is greatly impeded in its function by a fibroid tumor; that it does its work mechanically imperfectly, and that when it recovers from labor there is a very large probability that the nutrition of the fibroid by this very process of parturition is interfered with and is much more likely to undergo absorption. I remember several cases where the fibroid tumor disappeared, and so far as I know never gave further trouble; but in the class of cases where a fibroid tumor is sufficiently large to interfere with the expulsive efforts of the uterus, it is certainly a very important question to determine thoughtfully what you may do rather than how long you may wait. In many instances I think it is well to advise hysterectomy and in the earlier stages of impregnation abortion may be the safer method. It is an interesting subject to every practitioner, since it may occur at any time and for which every one cannot be too thoughtfully prepared to act and that too, sometimes very promptly.

DR. CUMSTON: The reason which would appear to me why we do not have more records from maternities

² See page 547 of the Journal.

of labor complicated by fibroid is for the simple reason that usually women miscarry before they get to term. I was at the Rotunda Hospital in 1892, and I distinctly remember two cases in the gynecological department there; perhaps they were not reported in the obstetrical department. They were treated surgically. Regarding how much trouble a fibroid will give, and even when extremely small, I beg to relate a case that occurred in my practice this year, and which Dr. Hare saw with me in consultation. It was a young lady twenty-six or twenty-seven, who miscarried at three months two years ago without any known cause. She was very healthy; the husband was extremely well; and the miscarriage occurred at three months very suddenly. She again became pregnant last year; and everything went on nicely until about the middle of pregnancy, when she sent for me one morning in a hurry, stating she had discovered she had a tumor. I examined the abdomen very carefully and just behind the umbilicus was a small reniform tumor which I took at the time to be perhaps a supernumerary floating kidney. It gave a peculiar pain when pressed upon, but the particular feature of the growth was that when the patient was in the recumbent position it would sink into the left iliac fossa and disappear, and I myself could move it quite freely two or three inches up and down. Not being very sure of my diagnosis, I had a consultation with Dr. Hare, who was rather of the opinion it was a pedunculated fibroid; and as the eventual history of the case showed, he was correct. This small fibroid, which certainly was not larger than half the palm of my hand, caused such a uterine inertia during labor that after the patient had been thirty-six hours in labor the thigh forceps was applied and a very large child was delivered. There was considerable blood lost at the time. The patient did very well until the seventeenth day: the lochia had entirely disappeared; and during the seventeen days there has been no odor whatsoever. She gained rapidly, nursing the child. There was an abundance of good milk, and in every way she was well. On the seventeenth day the temperature went up, and she developed phlegmasia alba dolens in the left leg. That got well in the course of fourteen or fifteen days, and then there was a second rise of temperature with chills, and the other leg was taken, which got well without any complications; and the patient is now up and about. I mention this because I would consider, and it was the opinion of other gentlemen who saw the case, that the fibroid was the cause of the difficult labor, uterine inertia, as well as the probable latent and tardy infectious process that took place in the case. The growth has diminished in size, but I can still palpate it.

This case illustrates very prettily the evolution of a fibroid. When the patient aborted, the neoplasm was seated in the uterine parenchyma and prevented the organ from further development, and consequently a miscarriage resulted. Then during the interval before the second conception took place, the neoplasm became subperitoneal having escaped from the uterine parenchyma, and in no way interfered with the development of the uterus during the second pregnancy.

THE MEDICAL ASSOCIATION OF DENMARK has distributed throughout the country pamphlets and placards containing directions for the prevention of tuberculosis.

THE BOSTON Medical and Surgical Journal.

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EXEUNT MEDICINÆ DOCTORES.

THE present month at the medical schools will be devoted to the final examinations. A multitude of candidates will obtain the coveted parchment; some after thorough study, some by dint of cramming, some—no one knows how!

In ancient times the oral method of examination prevailed; this has now for the most part gone out of vogue as a test of the fitness of the student for promotion or graduation. There were weighty objections to the oral examination—still admirable in the form of the class quiz as a stimulus to students. The examiner doubtless had autocratic power to accept or reject whom he pleased, as the examination could be severe or easy to suit the occasion, and there could be no appeal; it was even possible for this method to cover much superficiality and illiteracy. By the written examination the powers of the student are much more thoroughly tested and the results of his earlier education are brought out. Moreover, all of the class are served alike, and the written answers are preserved and can be appealed to in the event of dissatisfaction with the decision of the examiner.

Those whose task it has been to read and mark medical examination papers must have often noted the lack of literary ability displayed by some students who have a fairly good comprehension of the subject. These are papers where to award one due merit is a severe trial. Other papers are chiefly remarkable as indicating a vivid memory of the exact words of the lecture or of some text-book. Such students may not only pass the examination but take a high rank, though not necessarily profound or thorough. Other papers will be submitted which will cause a sensation of horror and despair to the instructor.

It is a question whether great illiteracy—though coupled with a fair knowledge of the subject—should not at once doom the candidate to rejection. A junior or senior should, we think, be sent back to the study of his spelling book, grammar and dictionary

who in answer to the question, "What is an abscess?" replies, "An abscess is a colection of puss in a circumcised cavity." A candidate for the degree of M.D. who spells inflammation with one *m*; suppuration, *supperation*; capillaries, *cappilaries*; bacillus, *baccilus*; and even blunders just as badly with common English words, and who can hardly write a sentence grammatically cannot be expected to honor a learned profession to which the diploma of a medical school gives him admission.

It may be said that these are very exceptional instances, but there are examiners in some medical schools who would be forced to admit that they are too common. It is from just this illiteracy and ignorance that our leading schools of medicine have obtained or are trying to obtain emancipation. It cannot but be admitted that the standard of medical education in this country is advancing. This is first of all apparent in the greater thoroughness of the matriculation examinations. The grossly illiterate must and will be excluded. Those medical schools (and they are too few) that propose to make matriculation dependent on the possession of a degree of Arts (or its equivalent) have taken a step in the right direction. Moreover, through affiliation with the Association of American Medical Colleges, many schools have raised the grade of requirements, both of matriculation and of the entire curriculum; and there is also a noticeable feature of progress in the fact that a four years' course of study is being very generally adopted.

All these indications of progress are to be welcomed; but it will, we fear, long be true in this country that too many persons enter the medical profession with an insufficient or unsuitable preliminary preparation.

MEDICAL NOTES.

THE THIRD INTERNATIONAL CONGRESS OF APPLIED CHEMISTRY will be held at Vienna beginning on July 28th.

THE CHICKAMAUGA PARK HOTEL has been purchased by Mrs. L. Z. Leiter, of Chicago, who will have it fitted up as a hospital for the troops, and will then present it to the Government. The officials have intimated their willingness to accept the gift.

FOREIGN MEDICAL PRACTITIONERS IN ITALY.—The Italian Government has officially announced that no modification will be made of the laws at present in force relative to foreign medical practitioners in Italy. Foreign practitioners duly qualified and registered may therefore practise as freely as they desire.

YELLOW FEVER IN MISSISSIPPI.—Up to June 14th nine cases of yellow fever had occurred at McHenry, Miss. A detention camp has been opened under the supervision of the Marine-Hospital Service. The army and navy medical departments are taking every precaution to protect the troops against infection.

AGGLUTINATIVE PROPERTIES OF PNEUMOCOCCUS SERUM.—At the Congrès Français de Médecine Interne, held recently in Montpellier, MM. Fernand Bezancon and V. Griffon presented a communication relative to the agglutinative properties of the serum in infections with the pneumococcus, and the application of these to the diagnosis of such infections.

THE AMERICAN ASSOCIATION OF GENITO-URINARY SURGEONS.—At the meeting of the American Association of Genito-Urinary Surgeons, held at Cranston's Hotel, West Point, on June 7 and 8, 1898, the following officers were elected for the ensuing year: President, Dr. James Bell, of Montreal; Vice-President, Dr. Samuel Alexander, of New York; Secretary and Treasurer, Dr. W. K. Otis, of New York. It was decided to hold the next meeting at the Clifton House, Niagara Falls, in May, 1899.

AMERICAN PEDIATRIC SOCIETY.—At its last meeting in Cincinnati, June 1st to 3d, this Society elected the following officers: President, Dr. W. P. Northrup, New York; First Vice-President, Dr. G. N. Acker, Washington, D. C.; Second Vice-President, Dr. Irving M. Snow, Buffalo; Treasurer, Dr. E. M. Buckingham, Boston; Secretary, Dr. S. S. Adams, Washington. Additional member of the Council, Dr. F. Forchheimer, Cincinnati; Editor, Dr. F. M. Crandall, New York. It was voted to hold the next meeting at Deer Park, Md.

BOSTON AND NEW ENGLAND.

ACUTE INFECTIOUS DISEASES IN BOSTON.—During the week ending at noon, June 15, 1898, there were reported to the Board of Health, of Boston, the following numbers of cases of acute infectious disease: diphtheria 26, scarlet fever 10, measles 53, typhoid fever 7.

A GASTRECTOMY IN BOSTON.—Dr. M. H. Richardson performed this operation two weeks ago upon a woman of forty-seven years, removing the pylorus and the whole of the stomach except a very small portion of the cardiac end, for carcinoma. The patient is doing well and will probably recover.

RESIGNATION OF DR. PAGE.—Chas. W. Page, M.D., has resigned from the superintendency of the Danvers Lunatic Hospital, and has accepted the position of Superintendent of the Connecticut Hospital for the Insane at Middletown, Conn.

NEW YORK.

COMMENCEMENT AT COLUMBIA.—The one hundred and forty-fifth annual commencement of Columbia University was celebrated on June 8th, and for the first time in the history of the institution the exercises were held within the University's own grounds. There were 479 graduates, including those of the Medical Department, and 148 more degrees were conferred than on any previous similar occasion. The first Harsen prize, of \$500, of the College of Physicians and Surgeons, was awarded to Victor C. Peterson. At a meeting of the trustees of the Uni-

versity held June 6th, the resignation of Prof. William H. Draper was announced, and in recognition of his long services in the college he was made professor emeritus. Dr. Draper, who was born in Brattleborough, Vt., in 1830, was graduated from Columbia College in 1851, and from the College of Physicians and Surgeons in 1855. He afterwards pursued his medical studies in Europe for some time, and had been a professor in the College of Physicians and Surgeons for twenty-nine years. In 1880 he was appointed Professor of Clinical Medicine, and it was of this chair that he was made professor emeritus. In 1886 he was elected President of the New York Academy of Medicine. Among the gifts to the University announced at the meeting of the trustees was a portrait, painted by Huntington, of Dr. James W. McLane (late President of the College), presented by the Faculty of the College of Physicians and Surgeons.

THE RED CROSS WORK.—The Medical Advisory Board of the American National Red Cross Relief Committee held its first meeting on June 6th. There were present Drs. Francis Delafield, John S. Billings, William H. Draper, Edward G. Janeway, Abraham Jacobi, Francis P. Kinnicutt, William T. Bull, George F. Shrady, and A. Monse Lesser. The board was organized by the election of Dr. William H. Draper as President, and Dr. F. P. Kinnicutt as Secretary. The First New York Ambulance Red Cross Equipment Society reported the receipt of subscriptions amounting to \$48,073 up to June 5th, and that three of the ambulances ordered had already been completed.

ARRIVAL OF THE "SOLACE" IN NEW YORK.—The United States hospital ship *Solace* (formerly the *Creole*, of the Cromwell line), the first vessel of the kind in the world, arrived in port on June 5th, from Admiral Sampson's fleet and Key West. She had on board fifty-five patients, six of whom were wounded and the remainder sick, and they were landed at the Brooklyn Navy-Yard. The Senior Surgeon of the ship is Dr. Thomas A. Street, and on his staff are Passed Assistant Surgeons Stokes, Smith and Bogart.

THE LONG ISLAND MEDICAL SOCIETY.—Representatives of all of the county medical societies of Long Island met at the Garden City Hotel on June 8th, and organized the Long Island Medical Society. The following officers were elected: President, Dr. William Browning, of Brooklyn; First Vice-President, Dr. L. N. Lanehart, of Hempstead; Second Vice-President, Dr. Wm. A. Hulse, of Bay Shore; Third Vice-President, Dr. Charles Jewett, of Brooklyn; Secretary, Dr. R. J. Morrison, of Brooklyn; Treasurer, Dr. A. J. Ferry, of Patchogue; Historian, Dr. Joseph F. Hunt, of Brooklyn.

AN EPIDEMIC OF TRACHOMA.—An epidemic of trachoma was recently discovered in the Truant School on East 21st Street, and it was found that 34 of the 109 inmates were affected with the disease. Of the inmates 45 were kept as strict prisoners and

the remaining 64 were allowed to go to their homes at night. The Board of Health was not able to find out precisely how the contagious ophthalmia was introduced, but its spread was readily accounted for by the fact that the boys all washed their hands and faces in a common wash-room and dried them on two or three towels suspended on rollers. All but 32 of the inmates were dismissed to their homes, proper precautions as to their treatment being taken, and the Board recommended that in future all pupils be examined by a physician before being admitted to the school, and an examination of the eyes of all the inmates be made once a month hereafter.

Miscellany.

MEDICAL SUPPLIES OF THE VOLUNTEERS.

THE following is a list of medical and surgical supplies furnished by the Surgeon-General of the State to each regiment of Massachusetts troops on their entering the service as United States Volunteers. The list is furnished to the JOURNAL by Surgeon-General Blood. There have been some newspaper discussion and some discouraging statements as to the want of medical stores for the volunteer troops.

Field medicine chest, fully supplied with tablets, etc. 3 medical officer's orderly pouches. 2 field operating cases, with instruments complete. Reserve chest. 3 pocket cases, medical. 3 pocket cases, surgical. 3 hypodermic syringes complete. 200 Brown mixture tablets. 200 quinine sulph. tablets. 400 chlo. potash tablets, 5 gr. 2 lbs. aromatic spts. ammonia. 5 yds. antiseptic gauze, corros. 1 lb. sheet wadding. 500 phen. tablets. 2 lbs sulph. magnes. 1 Arnold's sterilizer. 18 towels. 2 lbs. bicarb. soda. 2 pkgs. sapollo. 4 sheets. 3 operating gowns. 1 universal tool. 3 slop buckets. 1 kettle (agate). Cotton cloth, 3 yds. 1 gro. C. H. brushes. 7 silver catheters (1 to 7). 6 bougies (filiform).

Fracture femur outfit. Pair crutches. 12 coaptation splints. Pkg. drainage tubes.

Transfusion apparatus. 1 oz. tinct. benz. c. iodoform. Irrigating rubber bag. 4 oz. acid carb.

2 spools silk sutures. 3 cans plaster-of-Paris bandages. 3 cans gauze, iodoform. 6 splints, finger, tin. 2 splints, side. 4 splints. 3 splints, int. ang. 2 splints, Ham. 1 roll splint wire. Corkscrew. Ice cap.

1,000 tablets, antiseptic. 8 oz. foot powder. 1 lb. Seidlitz mixture. Medicine glass. Doz. mustard plasters. Doz. capsicum plasters. 1 qt. alcohol. 350 pepsin tablets. 1 lb. absorbent cotton. 100 sulph. tablets, 5 gr. 100 cathartic comp. 1-2 lb. licorice comp. tablets. 2 throat brushes. 200 chlorate potash tablets. 75 strychnia sulph. trit. 1-60. 25 antifebrin 5 gr. tablets. 1 lb. diarrhea mixture. 2 oz. zinc ointment. 1 lb. ether sulph. 5 lbs. flaxseed, ground. 1 lb. mustard, ground. 250 roller bandages (assorted). 48 gauze bandages (15 yds. each).

Hospital tent, U. S. A. Furnishings as follows: 4 iron bedsteads, 4 mattresses, 8 sh ets, 8 blankets, 4 pillows, 4 pillow cases, 2 chairs, 2 round tables, 1 office table, 2 toilet stands, 2 cuspidors, slop pail, water pail, lantern, 2 tin basins, 2 tin trays, 4 rubber blankets.

Correspondence.

THE ANNUAL MEETING OF THE AMERICAN MEDICAL ASSOCIATION.

DENVER, June 11, 1898.

MR. EDITOR:—The Denver meeting of the American Medical Association was of such unusual merit in many ways that some account, in addition to the formal report of the sessions, is deserved and may be of interest to your readers. The features most marking the meeting were the broad national character of the assembly, the large atten-

dance and the high quality of the work done. First, the broad character of the assembly. In past years there has been a large attendance of local or State members, with comparatively few from distant places. Here, in spite of the long journey from other large cities and the Eastern coast, every State in the Union was represented and by a worthy number, the attendance not being by any means chiefly Colorado members, this State having hardly more than the proportionate number, in view of the distances. The total registration of physicians was 1,332, the largest number at any meeting save the special occasional meeting at Philadelphia last year. In addition there were registered at the headquarters for ladies the names of over 500 wives and daughters accompanying members. Other members of families or relatives were not registered, so that the total number of visitors was considerably more than 1,800.

The preparations to care for this large number were most ample and efficient. Never has the registration been effected with so little delay and blocking at the windows. This was due to the business-like care of the committee in providing large desk space away from the window for members to fill out the usual papers of registration before they came to the treasurer's window. In addition there was a sufficient and disciplined clerical force at the windows to expedite business.

In the same building there was a bureau of information fully and intelligently attended. A second bureau was established at the Brown Hotel, which from its location in the midst of the meeting-places of the Sections, all of which with one exception were within two blocks of the hotel, was an unofficial headquarters.

In passing, mention may be made of the exhibits, which were of the usual interest and merit, and more in number than at the meeting in Philadelphia.

The general character of the meeting was most satisfactory and encouraging. Not only was the attendance, as has been said, the largest of any meeting, but the number of men of prominence from all over the country was greater than in many years, a most gratifying evidence of the growing power of the Association as a national organization of the highest quality. The good character of the rank and file of the meeting was also a matter of frequent comment. The papers read before the Sections were good, and the discussions were marked by clearness and directness of thought and speech. Especially was this spoken of by those attending the symposium on appendicitis in the Surgical Section.

The Sections met in the various churches, thus having ample rooms with good acoustic properties. They were so arranged that members could go easily from one Section to another without loss of time.

An excellent map, showing the various meeting-places, was provided by the local committee. It had been carefully planned to fit the inside cover of the official programme without folding, but the JOURNAL, for some unseen reason, placed it, folded several times, in the back of the volume, where it was readily overlooked and not easy to consult.

The general sessions were held in the Broadway which was decorated, as were all the Section rooms, with American flags and bunting. The address of the President was read, in the absence of General Sternberg, by Lieutenant-Colonel A. A. Woodhull. The Address in Medicine by Dr. Musser, and especially that in Surgery by Dr. Murphy, were so delayed by business that many were too fatigued to remain to listen. To insure the proper honor to these general addresses in the future, the Association voted that hereafter an hour be set by the committee for these addresses, and that all business be suspended when that time comes, and finished after the address is delivered.

The great feature, however, of the general sessions, which has been on everybody's lips, was the splendid manner in which Dr. T. J. Happel, of Trenton, Tenn., the Fourth Vice-President, presided over the meetings. Rarely has such absolute order and quiet been kept in so large and general an assembly with such pleasant and winning

courtesy of command. Without ever restricting freedom of speech, Dr. Happel kept the meeting down to the business in hand. His rulings were always fair, and more than once greeted with general applause. His statements of motions and points at issue were so clear and direct that no one was ever in doubt as to the precise vote in question. His expedition of business and grace of manner won the admiration of every one.

The entertainment of the visitors was such as might have been expected from the generous West. No convention could have received more evidence of welcome and hospitality. The programme of receptions and dinners was presented to the members in a souvenir volume of over a hundred pages of well-selected views of Colorado scenery and items of interest. A welcome and unusual feature was the entire absence of all advertisements from the book. The button, of silver, and the badges of the local committees were notable for their elegance and simple taste.

On Monday evening the Committee of Arrangements gave a dinner to the American Medical Editors Association. This was attended by 185 guests, and was in every way a great success. Those who were so fortunate as to be present all spoke of the dignity of the occasion and the excellence of the speeches. The addresses were short, bright and stirring. It was a noticeable thing at all the dinners that the remarks inspired by the toasts and the decorations, in every room of flags and bunting, were of the highest patriotism and national dignity.

On Tuesday evening the usual Section dinners were held at the various hotels in town and were well attended. On the same evening the committee provided, for the wives and such members as did not care to go to the dinners, an exhibition of lantern views of Colorado scenery, with an explanatory lecture.

Wednesday evening there was a large general reception given to all the members and their families at the Brown Hotel. Over 2,000 persons attended. The decorations were attractive, and the ball-room and supper-rooms were well cared for, so there was never any crush. Supper was served easily and at tables. The private receptions Thursday afternoon and evening were at the residences of citizens, and were generously given as a token of honor to the Association. Flowers, music and refreshments were generously provided for the large number of guests in every house.

On Friday the State Medical Society gave a free excursion to their guests in a trip up the wonderful Clear Creek Cañon to Georgetown and around the famous Loop. At Idaho Springs the entire excursion party, which numbered 1,500 persons, was given a substantial dinner by the citizens of that enterprising town. Entirely at their own suggestion this town of only 4,200 inhabitants provided a well-cooked and attractive dinner for the entire 1,500 visitors who came in seven special train-loads. The organization was admirable, and every one had a seat and a quietly served repast. It was but a type of the wide-open hospitality extended to us on every hand.

On Saturday the Association was again taken in special trains, and without cost, to Colorado Springs, where they were given lunch and an opportunity to visit the many places of interest there and at Manitou. The return was at our own convenience, the tickets given us being good until the 21st of June. Many have availed themselves of the exceptionally low rates offered by the railroads to visit other parts of the State, so that to-day, as I write, the great party is scattered and at an end.

In all this week everything has been done that could in any way add to our convenience, entertainment or instruction. Unfortunately the local committee, which apparently had everything else imaginable at their command for our pleasure, had no control over the weather, which played one of its provoking pranks and furnished cloudy days with showers until to-day when it has returned to its customary serenity of blue sky. The disappointment of the local men was keen, and it was hard to make them realize that if simple cloudiness was sufficient to be considered atrocious, as they called it, they must indeed

have a fine climate, for the days were not uncomfortable nor did the showers interfere with the entertainments. But the mountains did stay hid, and the sun was exceedingly retiring or more correctly retired.

Taking the meeting as a whole, it was in every way a complete success, and one to be long remembered by those who were fortunate or wise enough to attend. The general absence of Boston men was more than once spoken of with regret.

The character of the men gathered here was notable, the quality of the Section work better than usual and the new half-century of the Association begun with a promise of ever-increasing usefulness. * * *

BEWARE OF THE OSTEOPATHIC CIRCULAR.

SPRINGFIELD, ILL., June 6, 1898.

MR. EDITOR:—A concern in Chicago claiming to teach the alleged science misnamed osteopathy makes the following remarkable statement relative to its so-called courses in circulars which are sent broadcast over the country:

"Terms of study are so graded and the courses of study so broad and complete that they comply with all the requirements of the Illinois State Medical Board and allow our students two years' credit on a regular medical education. These credits are recognized in any medical college in this country and will be equivalent to two years' work done there."

If by the "Illinois State Medical Board" is meant the Illinois State Board of Health, the assertion made in reference to that body is a lie in the fullest acceptance of the term. It is not true furthermore, that the "credits" named are recognized in any medical college in this country. On the contrary, it is exceedingly doubtful if a single reputable medical institution will grant any advanced standing whatever to applicants from this and other "colleges" of similar character. Should, however, this be done, it is needless to say that the institution or institutions concerned will receive no further recognition from this Board, and it will be remarkably strange if the various State Boards of Medical Examiners throughout the Union will view such irregular proceedings with complacency.

As the circulars are calculated to deceive the unwary, and to cause prospective graduates in medicine to waste two years of time, I will ask you to give this letter a prominent place in your Journal, in order that the facts in the case may be widely disseminated.

Very truly yours,
J. A. EGAN, M.D.,
Secretary Illinois State Board of Health.

METEOROLOGICAL RECORD

For the week ending June 4th, in Boston, according to observations furnished by Sergeant J. W. Smith, of the United States Signal Corps:—

Date.	Baro- meter	Ther- mometer.		Relative humidity.		Direction of wind.		Velocity of wind.		We'thr. *		Rainfall in inches.	
	Daily mean.	Daily mean.	Maximum.	Minimum.	8.00 A. M.	8.00 P. M.	Daily mean.	8.00 A. M.	8.00 P. M.	8.00 A. M.	8.00 P. M.		
S.....29	29.85	60	67	52	100	92	96	N.E.	S.	8	13	C.	F.
M.....30	29.75	68	76	59	86	69	78	W.	N.	8	12	O.	O.
T.....31	29.92	64	72	56	69	84	76	N.	N.E.	10	12	O.	O.
W.....1	30.00	60	64	55	84	79	82	N.E.	N.E.	14	12	O.	C.
T.....2	30.00	55	57	53	97	91	94	N.E.	N.E.	17	10	R.	O.
F.....3	30.08	56	59	53	95	97	96	N.	N.E.	18	24	R.	R.
S.....4	30.28	52	54	50	96	83	90	N.E.	N.E.	23	15	R.	O.
													.58

* O, cloudy; C, clear; F, fair; G, fog; H, hazy; S, smoky; R, rain; T, threatening; N, snow. † Indicates trace of rainfall. 25°—Mean for week.

RECORD OF MORTALITY

FOR THE WEEK ENDING SATURDAY, JUNE 4, 1898.

CITIES	Estimated population.	Reported deaths in each.	Deaths under five years.	Percentage of deaths from					
				Infectious diseases.	Acute lung diseases.	Diarrheal diseases.	Diphtheria and croup.	Cerebro-spinal men.	
New York	3,488,699	1054	348	9.62	13.86	1.62	2.34	1.08	
Chicago	1,619,226	—	—	—	—	—	—	—	
Philadelphia	1,214,256	—	—	—	—	—	—	—	
St. Louis	570,000	—	—	—	—	—	—	—	
Baltimore	550,000	140	55	10.05	17.42	.87	2.01	3.35	
Boston	517,732	180	55	12.32	11.76	.56	.56	4.48	
Cincinnati	406,000	99	—	5.06	11.11	3.03	2.02	—	
Cleveland	360,000	—	—	—	—	—	—	—	
Pittsburg	285,000	74	27	14.85	7.05	9.45	—	—	
Washington	277,000	—	—	—	—	—	—	—	
Milwaukee	275,000	—	—	—	—	—	—	—	
Providence	150,000	56	13	7.12	14.24	5.34	—	—	
Worcester	105,050	32	10	9.39	18.78	3.13	—	3.13	
Fall River	85,919	26	10	—	—	—	—	—	
Nashville	87,784	30	11	10.00	6.86	10.00	—	—	
Lowell	87,193	23	8	—	26.10	—	—	—	
Cambridge	86,812	22	5	12.45	4.15	4.15	—	4.15	
Lynn	65,220	19	6	5.26	—	—	—	—	
Charleston	65,165	—	—	—	—	—	—	—	
New Bedford	62,416	9	2	11.11	—	11.11	—	—	
Somerville	57,977	—	—	—	—	—	—	—	
Lawrence	55,510	9	5	—	18.18	—	—	—	
Springfield	54,790	13	4	—	7.69	—	—	—	
Holyoke	42,364	13	5	38.45	30.76	22.07	—	15.38	
Salem	36,062	12	1	8.33	16.66	8.33	—	—	
Brookton	35,853	5	0	—	20.00	—	—	—	
Malden	32,894	5	0	—	20.00	—	—	—	
Chelsea	32,716	16	0	—	18.00	6.25	—	—	
Haverhill	31,406	8	2	12.50	12.50	—	12.50	—	
Gloucester	29,775	—	—	—	—	—	—	—	
Newton	28,990	—	—	—	—	—	—	—	
Fitchburg	28,392	2	0	—	50.00	—	—	—	
Taunton	27,812	12	2	16.66	—	8.33	—	8.33	
Quincy	22,562	6	0	—	—	—	—	—	
Pittsfield	21,891	—	—	—	—	—	—	—	
Waltham	21,812	1	0	—	—	—	—	—	
Everett	21,575	6	2	—	—	—	—	—	
North Adams	19,135	5	2	—	20.00	—	—	—	
Northampton	17,418	—	—	—	—	—	—	—	
Chicopee	17,368	5	4	—	—	—	—	—	
Brookline	16,164	—	—	—	—	—	—	—	
Medford	15,823	9	3	—	18.18	—	—	—	

Deaths reported 1,912: under five years of age 584; principal infectious diseases (small-pox, measles, diphtheria and croup, cerebro-spinal meningitis, diarrheal diseases, whooping-cough, erysipelas and fevers) 203, acute lung diseases 259, consumption 208, diarrheal diseases 45, diphtheria and croup 33, cerebro-spinal meningitis 30, scarlet fever 28, measles 20, typhoid fever 12, erysipelas 8.

From scarlet fever New York 13, Baltimore 2, Boston and Chelsea 1 each. From measles New York 13, Boston 3, Cincinnati 2, Baltimore and Pittsburg 1 each. From typhoid fever New York 4, Boston 3, Baltimore, Providence, Worcester, Malden and Chelsea 1 each. From erysipelas New York 5, Boston 3.

In the thirty-three greater towns of England and Wales, with an estimated population of 11,218,378, for the week ending May 28th, the death-rate was 16.5. Deaths reported 3,548; acute diseases of the respiratory organs (London) 216, measles 134, whooping-cough 131, diphtheria 55, diarrhea 34, scarlet fever 26, fever 19.

The death-rates ranged from 8.0 in Croydon to 29.1 in Halifax; Birmingham 17.6, Bradford 16.3, Cardiff 13.5, Gateshead 22.1, Hull 15.2, Leeds 17.1, Liverpool 32.5, London 16.0, Manchester 21.9, Newcastle-on-Tyne 23.2, Nottingham 15.2, Sheffield 16.2, Sunderland 23.2.

OFFICIAL LIST OF CHANGES IN THE STATIONS AND DUTIES OF OFFICERS SERVING IN THE MEDICAL DEPARTMENT, U. S. ARMY, FROM JUNE 4, 1898, TO JUNE 10, 1898.

Acting Assistant Surgeon THOMAS R. MARSHALL, U. S. A., will proceed from Richmond, Va., to Tampa, Fla., and report for duty with troops in the field.

Acting Assistant Surgeon GEORGE H. PENROSE, U. S. A., will proceed from Fort Douglas, Utah, to San Francisco, Cal., and report for duty with the Utah Batteries for the expedition to the Philippine Islands.

Acting Assistant Surgeon A. S. CONDON, U. S. A., will proceed from Ogden, Utah, to Fort Bayard, N. M., and report for duty.

Acting Assistant Surgeon JAMES H. MCCALL, U. S. A., will

proceed from Huntingdon, Tenn., to Fort McPherson, Ga., and report for duty in the general hospital at that place.

Acting Assistant Surgeon W. P. CHAMBERLAIN, U. S. A., will proceed from this city to Fort Monroe, Va., and report for duty.

CAPTAINS FRANK R. KNEFFER and PAUL F. STRAUB, assistant surgeons, will report to the commanding general, Department of the Pacific, for duty with the expedition to the Philippine Islands.

CAPTAIN CHARLES F. KIEFFER and FIRST-LIEUT. POWELL C. FAUNTLEBOY, assistant surgeons, ordered to Tampa, Fla., for duty.

CAPTAIN OGDEN RAFFERTY, assistant surgeon, ordered to Key West, Fla., for duty in the general hospital at that place.

CAPTAIN WILLIAM C. GORGAS, assistant surgeon, ordered to duty on U. S. Hospital Ship "Relief."

CAPTAIN JOHN S. KULP, assistant surgeon, is relieved from duty in Department of the Columbia, and ordered to report in person to the Surgeon-General of the Army for further orders.

CAPTAINS FREDERICK P. REYNOLDS and GEORGE J. NEWGARDEN, assistant surgeons, having reported in person to the Surgeon-General of the Army, are ordered to Tampa, Fla., for duty with Cavalry Division.

CAPTAIN JAMES D. GLENNAN, assistant surgeon, is relieved from duty with 6th U. S. Cavalry and ordered to Camp George H. Thomas, Chickamauga National Park, Ga.

CAPTAIN WILLIAM P. KENDALL, assistant surgeon, is relieved from duty with the 9th U. S. Cavalry and will proceed to Camp George H. Thomas, Chickamauga National Park, Ga.

CAPTAIN HENRY R. STILES, assistant surgeon, ordered to Tampa, Fla., for duty with 5th Army Corps.

CAPTAIN WILLIAM TEPHENSON, assistant surgeon, is relieved from duty with the 4th U. S. Infantry, and ordered to Camp George H. Thomas, Chickamauga National Park, Ga., for duty with 1st Army Corps.

CAPTAIN HENRY I. RAYMOND, assistant surgeon, is relieved from duty with the 18th U. S. Infantry, and ordered to Camp George H. Thomas, Chickamauga National Park, Ga.

CAPTAIN EDWARD C. CARTER, assistant surgeon, will proceed to Chattanooga, Tenn., for the purpose of establishing a general hospital in the Chattanooga Park Hotel, to be known as the Leiter General Hospital, in accordance with such instructions as he may receive from the Surgeon-General of the Army.

CAPTAIN WILLIAM D. CROSBY, assistant surgeon, will report to the Major-General, commanding the Department of the Pacific, for duty with the expedition to the Philippine Islands.

Acting Assistant Surgeon EDWARDS C. POEY, U. S. A., ordered to Tampa, Fla., for duty.

Acting Assistant Surgeon J. R. SHANNON, U. S. A., ordered to Tampa, Fla., for duty.

The order assigning Acting Assistant Surgeon T. S. DABNEY, U. S. A., to Tampa, Fla., is revoked, and he is ordered to Jackson Barracks, La., for duty.

Acting Assistant Surgeons RICHARD P. STRONG and HENRY E. WETHERILL, U. S. A., ordered to Tampa, Fla., for duty.

Acting Assistant Surgeon EDWARD SCHREINER, U. S. A., ordered to Fort McPherson, Ga., for duty in general hospital.

Acting Assistant Surgeon FREDERICK MCG. HARTSOCK, U. S. A., ordered to U. S. Hospital Ship "Relief."

CAPTAIN ALFRED E. BRADLEY, assistant surgeon, ordered to Camp Alger, Falls Church, Va., for duty with 2d Army Corps.

CAPTAIN EDGAR A. MEARNS, assistant surgeon, ordered to Camp George H. Tarney, Chickamauga National Park, Ga.

Acting Assistant Surgeon JAMES B. FERGUSON, U. S. A., ordered from Olivia, Minn., to Fort Yellowstone, Wyo., for duty.

Acting Assistant Surgeon RUPERT NORTON, U. S. A., ordered to Fort McPherson, Ga., for duty in general hospital at that place.

OFFICIAL LIST OF CHANGES OF STATIONS AND DUTIES OF COMMISSIONED OFFICERS OF THE UNITED STATES MARINE-HOSPITAL SERVICE FOR THE FOURTEEN DAYS ENDING JUNE 9, 1898.

STEWART, W. J. S., passed assistant surgeon. Upon being relieved by Assistant Surgeon JOHN McMULLEN, to report at Washington, D. C., for duty. June 6, 1898.

NORMAN, SEATON, assistant surgeon. Granted leave of absence for two days. May 27, 1898.

McMULLEN, JOHN, assistant surgeon. To proceed to Vineyard Haven, Mass., and assume command of Service. June 6, 1898.

BOARDS CONVENED.

Board convened to meet at U. S. Marine-Hospital, Chelsea, Mass., at 4 o'clock, P. M., June 1, 1898, for physical examination of officer of the Revenue Cutter Service. Detail for the Board:

Assistant Surgeon H. W. WICKES, Chairman; Assistant Surgeon L. L. LUMSDEN, Recorder.

Board convened to meet at Washington, D. C., at 10 o'clock, A. M., July 6, 1898, for examination of officers for promotion and candidates for appointment as assistant surgeon. Detail for the Board: Surgeon GEORGE PURVIANCE, Chairman; Surgeon JOHN GODFREY; Surgeon D. A. CARMICHAEL, Recorder.

COLLEGE OF PHYSICIANS OF PHILADELPHIA. THE FIRST NATHAN LEWIS HATFIELD PRIZE FOR ORIGINAL RESEARCH IN MEDICINE.

The College of Physicians of Philadelphia announces through its Committee that the sum of five hundred dollars will be awarded to the author of the best essay in competition for the above prize.

Subject: "A Pathological and Clinical Study of the Thymus Gland and its Relations."

Essays must be submitted on or before January 1, 1900.

Each essay must be typewritten, designated by a motto or device, and accompanied by a sealed envelope bearing the same motto or device and containing the name and address of the author. No envelope will be opened except that which accompanies the successful essay.

The Committee will return the unsuccessful essays if reclaimed by their respective writers or their agents within one year.

The Committee reserves the right not to make an award if no essay submitted is considered worthy of the prize.

The treatment of the subject must, in accordance with the conditions of the Trust, embody original observations or researches or original deductions.

The competition shall be open to members of the medical profession and men of science in the United States.

The original of the successful essay shall become the property of the College of Physicians.

The trustees shall have full control of the publication of the memorial essay. It shall be published in the *Transactions* of the College, and also when expedient as a separate issue.

Address J. C. WILSON, M.D., Chairman,
College of Physicians, 219 S. Thirteenth St., Philadelphia.

RECENT DEATHS.

GEORGE EDWARD FREEMAN, M.D., M.M.S.S., died in Brockton, June 12, 1898, aged forty-six years.

LORD LYON PLAYFAIR, the distinguished chemist, political economist, civil service reformer and parliamentarian, died in London on May 31, 1898, aged seventy-nine years. He was born in Bengal in 1819 and was educated at the College of St. Andrews, in Scotland. In 1843 he was appointed professor of chemistry in the Royal Institution at Manchester, and in 1844 he was appointed one of the Royal commissioners for the examination of the sanitary condition of the large towns and populous districts in England. He was next appointed chemist to the Museum of Practical Geology and Lectures in the Government School of Mines in 1851. In this year he was appointed Companion of the Bath in England, and an officer of the French Legion of Honor and he also was appointed gentleman usher to the late Prince Consort. From 1853 to 1856 he was secretary to the department of science and art in connection with the Board of Trade; in 1858 he was elected professor of chemistry in the University of Edinburgh, and in the same year he was president of the Chemical Society of London. In 1868 he was elected a member of Parliament for the University of Edinburgh and St. Andrews. He was a liberal in politics, and in 1873 and 1874 was postmaster-general under Mr. Gladstone. He was a Fellow of the Royal Societies of London and Edinburgh, as well as a member of many learned societies of Great Britain and the Continent and he was the author of numerous contributions to science. He was nominated to the peerage in 1892. Dr. W. S. Playfair, the distinguished London obstetrician, is his brother.

BOOKS AND PAMPHLETS RECEIVED.

Text-Book of Medical Jurisprudence and Toxicology. By John J. Reese, M.D., late Professor of Medical Jurisprudence and Toxicology in the University of Pennsylvania; late President of the Medical Jurisprudence Society of Philadelphia. Fifth edition, revised by Henry Leffmann, A.M., M.D., Ph.D., Professor of Chemistry and Toxicology in the Woman's Medical College of Pennsylvania; Pathological Chemist to the Jefferson Medical College, Philadelphia, etc.

A Practical Text-Book of the Diseases of Women. By Arthur H. N. Lewess, M.D., Lond., Obstetric Physician to the London Hospital, and joint Teacher of Practical Obstetrics in the London Hospital Medical School; Examiner in Midwifery and Diseases of Women at the Conjoint Board of the Royal College of Physicians of London and of the Royal College of Surgeons of England, etc. Fifth edition. With 174 illustrations, four colored plates and 71 illustrative cases. Philadelphia: P. Blakiston, Son & Co. 1897.

Address.

THE RELATION OF PATHOLOGY TO MEDICINE.¹

BY W. T. COUNCILMAN, M.D.,
Shattuck Professor of Pathological Anatomy in the Harvard University Medical School.

(Concluded from No. 24, p. 580.)

A NEW interest has been given to pathology, and new fields have been opened to it, by the discovery of the connection between lower forms of life and changes in tissue. The study of bacteria in their relation to disease must form an integral part of pathology. We have been able by the study of bacteria in connection with lesions to appreciate many important primary lesions which had previously escaped our attention. More than this, we have been able to extend the field of observation by experiment. In the study of the pathological changes in man we are more or less dependent on chance for our material. The lesions we are investigating may be so advanced when obtained from the autopsy that it is impossible to study their mode of formation. We are enabled by the inoculation of animals to obtain a lesion at any stage desirable for our study. Our knowledge of the histogenesis of the tubercle and of different forms of inflammation would have been impossible without such experimental methods. By inoculating animals of different species or animals of different ages, or varying the amount and virulence of the organism inoculated, we are able to produce experimentally and to refer them to definite causes, those variations of lesions of the same character which were formerly inexplicable. We have been able to recognize that certain lesions are due to the direct action of the organisms on the tissues, and that others are caused by soluble chemical substances, either produced by the bacteria themselves or by the tissues under their influence. There is unquestionably much work to be done in the study of bacteria, in their connection with botany and with hygiene. The study of their species, their morphology, their products, their variations, the part they play in nature, and their general relations to disease does not come under the pathologist. The study of bacteria in their definite relation to pathological anatomical lesions is a part of pathology.

Under general pathology come the questions concerning those alterations of function which are the result of anatomical changes. General pathology has also been called pathological physiology, and bears much the same relation to pathological anatomy as does the study of normal function physiology to anatomy. The attempt has been made in the Austrian University to divide pathology into the two departments of general pathology and pathological anatomy, with separate laboratories and teachers for each. This was probably the result of the narrow conception of pathology by Rokitsansky and the Vienna School. It was felt that something must be added to the narrow descriptive science of Rokitsansky, and, instead of forcing a proper conception of the scope of the science, they made the mistake of dividing it. General pathology has also been considered as experimental pathology in contra-distinction to pathological anatomy, as though the experiment did

not form one of the bases of pathological anatomy if we consider this more than a descriptive science. Considered in this sense, general pathology is the connecting link between pathological anatomy and the clinic, and its problems can be approached from either side. The pathological anatomist who pays no attention to general pathology loses the power of thoroughly understanding the character of disease. He could be compared to the clinician who would be contented with the observation of the symptoms of a disease. A pathology which does not come in contact with pathological anatomy on the one hand, or with the clinic on the other, cannot progress, because it does not become acquainted with the character of the problems which disease presents. We owe many of the most important advances which have been made in pathology to those who have entered into it from a clinical point of view. The work of John Hunter in pathology is the most distinguished example of this connection between pathology and clinical medicine. It is seen also in the long list of distinguished English physicians—as Bright, Bennet, Addison, Gulliver, Williams and Fagge—who followed Hunter. The work of these men is important, not only in the actual contributions to our knowledge of disease which they made, but by following scientific methods they kept English medicine in the first half of the century free from the speculative philosophy of Germany. There can also be little doubt that the combined study of clinical symptoms with pathological anatomy makes the clinician broader and stronger. It is difficult to find a great clinician, either in medicine or surgery who has not made important contributions to pathology. We have only to point to English medicine in the first half of this century and to German medicine in the last half, to see the truth of such a statement. It is especially here that the experimental method produces the best results. The pathological anatomist must resort to experiment to ascertain the effect of a certain lesion or function. The clinician can in many cases understand only by varying the conditions of an experiment in what way a lesion acts in producing symptoms. The experimental method as applied to the elucidation of symptoms has yielded fully as important results to the clinician as to the pathologist.

In a consideration of the means for the study of pathology the laboratory comes first. The laboratory is designed to give better opportunities for those who work in the subject. The methods used in pathological investigation are so numerous, so complicated and often so expensive, the apparatus used often requires so much space, that it is rarely possible for a private individual to provide himself with such facilities. The pathological laboratory is a recent creation and with the increase of opportunity which it afforded the advance of the science went hand in hand. When Virchow returned to Berlin, his departure having been occasioned in 1848 by an excess of political activity which the authorities regarded as pernicious, he made one of the conditions for his return, the creation of a pathological laboratory in connection with the Charité Hospital. This example was followed all over Germany, and now no university and hospital is without its pathological institute.

In the United States there are numerous pathological laboratories, both in connection with teaching institutions and with hospitals. There has even been

¹ Annual Discourse before the Massachusetts Medical Society, June 9, 1896.

in this country the example of a pathological laboratory without any connection with either a medical school or a hospital in which pathology was studied as a branch of university work in biology, and as such, made important contributions to the subject. It is most interesting to compare the progress of medicine in England and Germany during this century. The conditions have been exactly reversed in the two halves of the century. The great advance which Germany has made in the latter half may fairly be attributed to the influence of the laboratories, the work of which in England was restricted both by the lack of means and by pernicious and meddlesome legislation.

The pathological laboratory should be considered from three points of view; but the different views obtained so merge into one another, and the different subjects are so interdependent that they form but special features of a single landscape. The three points are: first, its connection with a hospital in assisting in diagnosis and directly furthering medical art; secondly, a place in which all the opportunities for research shall be afforded; and, thirdly, a place for teaching. It is equally possible to view the hospital from such points of view, as a place for the best treatment of the sick, as a place for medical research and a place for teaching; and the excellence of development in any one of these aspects furthers the other. The best hospital and the best laboratory will be one in which all three sides are developed to the fullest extent.

First, in its connection with the hospital as a place where methods of diagnosis can be carried to a fuller extent than in the hospital. There has been to a certain extent some attempt in hospitals to separate this part of the work which so closely appertains to the clinic, from the other work of the pathological laboratory, and to call the place where it is carried out, the clinical laboratory. No good can come from such a separation, no more than has come from the separation of general pathology and pathological anatomy. It is of the utmost importance that the worker in one department should come in contact with those who are studying in others. That the man who has come from the clinic examined the urine of a man who has certain symptoms and found albumin and certain morphological products should exchange ideas with a man who is studying the pathological changes in such kidneys. Each obtains a more comprehensive view of the disease. The presence of tubercle bacilli in sputum should call up not only the clinical picture which would be presented, but the condition of the lungs. It is possible that in certain points a greater advance might be made by such separation but the broader point of view is lost. In the pathological laboratory should be contained every means which will facilitate such purely clinical investigations. They should in great part be carried out by the young men in the hospitals who themselves come in contact with the sick. Their work should be supervised by a man who is specially skilled in such methods of investigation and who can correct or assist them. Every day sees a greater advance in these clinical pathological investigations, and methods of examination become more complicated. Such investigations are of as much importance for the surgeon as for the physician. In the case of a tumor it is often of the utmost importance to know its exact character before oper-

ating. This knowledge will often determine the character and the extent of the operation. Nearly every disease, either medical or surgical, is more or less open to investigation by objective methods. An individual appears in the clinic with an inflamed throat, and we no longer surmise as to whether it may be a case of diphtheria without membrane formation or a membranous inflammation without diphtheria, but a culture is sent to the laboratory and the diagnosis is made on exact knowledge. It would take too much time to multiply examples. Experiments must often be performed in connection with such work. We are often only able to direct the presence of certain organisms by inoculating animals.

Next in the relation of the laboratory to the hospital comes the post-mortem examination. To make a post-mortem examination in a proper manner demands much more now than formerly. Bacteriological cultures must be made of every organ to determine not only the cause of disease but the extension of the organism in the body. There may be primary infection and secondary infection depending upon this. The organisms found may be of great virulence or attenuation, which can only be told by inoculation. There must be a thorough investigation of all the organs; the character of the lesions, their cause, and the effect of lesions in one organ, in determining lesions in another, must all be borne in mind. Thorough microscopic examination must be made of all the organs, for some of the most important lesions of disease can only be determined by microscopic examination. We do not know any disease; exactly the same conditions are not found in any two individuals dying of the same disease. We should regard a disease as an experiment, and the conditions of the experiment are more varied than we could possibly make them. The post-mortem investigations should be made with a knowledge of the symptoms and all that can be learned from the clinical course of the disease and especially by the objective methods of clinical investigation. Many conditions in the pathology of the circulation may become clear to us when objective methods of measuring blood pressure shall come into use. The work of the pathologist and the clinician should go hand in hand. The pathologist has a certain advantage in that the cause, histogenesis and relations between the lesions are for him a legitimate subject for investigation. The clinician cannot dispense with the pathological anatomical investigation unless he content himself with the bare diagnosis. The clinician should not think of the pathologist as a more or less useful individual who can sometimes give him information, nor should the pathologist regard the clinician as the blind instrument who under Providence furnishes him with material for investigation. All the work of the laboratory should be carefully recorded and the records made easily accessible. In such a way the work of each individual may be utilized even when he works no more.

I trust I have shown how much the second part of the laboratory work, that of research, is dependent upon the first part. But the research may extend much farther afield. Pathology is the study of life under abnormal conditions, and as such, and regarded simply as a branch of biology, is as worthy of study without any relation to the clinic or to man as is physiology. Some of the greatest advances which have been made in pathology have come from those

who have attacked its problems from this point of view. It is possible that some of the pathological conditions in single cells will become much clearer to us from the study of cell changes in the unicellular organisms. The pathological laboratory should be provided with aquaria and with means for the study of vegetable pathology. The latter study has yielded most important results and has helped us to understand many things better. It is needless to say that in such a laboratory comparative pathology should have an important place. The science of comparative pathology has attained such an importance that it has its own laboratories and men who are exclusively devoted to it. The diseases of animals are now much better known from the anatomical and bacteriological point of view than they are from the clinical. Nothing can be gained but much lost by such separation of comparative and human pathology. This side of pathology has made and is making great advances. Investigations in it have been of great influence in the economy of the farm and country. By means of it many things in human pathology have been cleared up or the way for further investigations pointed out. The pathological laboratory then should afford opportunities to work, for those who wish to work in any department, and whose training has especially fitted them for certain lines of work.

In what relation does pathology stand to the medical student. We may start with the assumption that the student is to be taught those things which will enable him to practise his calling, and that medical education is certainly the best which will produce the best practitioner. Probably the greatest fault to be found in medical education at the present time is that with the greater extent of ground which it covers and with the greater specialization of departments there is a lack of organic connection. The student learns anatomy, chemistry, physiology; he passes his examination on these subjects, and they more or less pass out of his life and memory. On his first entry into the clinic he begins the study of conditions which seem utterly at variance with what he has learned before. He finds on auscultation of the heart of an individual that in the place of a short, sharp, second sound, there is a murmur almost comparable to the water rushing along a pebbly brook. In the place of the normal slow increase in the size of the artery at the wrist he feels a sudden sharp increase in size, then as sudden a collapse. He looks at the nails and sees that they first blush then pale. He is told that this condition is due to a regurgitation of blood at the aortic orifice, and he cannot see how his study of the normal circulation helps him in appreciating the condition here. If he is to understand the disease he must go much farther. He must understand how under the influence of a certain cause or causes a pathological process has been started in the valves and has led to a certain alteration in structure, called a lesion. That this lesion is the result of an inflammation in a tissue of a certain anatomical structure, and that in consequence of it the structure of the valves has become so altered that they can no longer perform their physiological function. His knowledge of the normal circulation tells him that the aortic valves should close slightly after systole, and how this is brought about, that the blood pressure in the arteries rises at each systole and slowly falls, the arteries emptying into the capillaries. It is only by comparing the normal structure with the abnormal,

the normal function with the abnormal, that he is enabled to understand how the abnormal sound is produced and what it means. He must go farther, he must understand what compensation there is, what other changes have taken place which have made it possible for the circulation to continue in spite of such an abnormal condition. He finds that the heart is hypertrophied and dilated, and that at once brings him to the question of why and how this takes place. He must understand what effect this condition has had on the blood pressure, and to do this he may resort to experiment. What effect has this abnormal condition of the circulation had on the general blood-supply of organs and their nutrition. In certain cases he finds that in individuals with this lesion, the skin of the ankle pits on pressure; that the character of the urine is changed. He may recognize by a closer observation of all the clinical phenomena that in certain cases the active process by which the lesion is produced is still in progress, while in others the lesion is completed. In connection with the cause comes the action of bacteria. If he understands the disease it is necessary that he recall all that he knows of physics, anatomy, physiology and pathological anatomy—all these bear on the case—as soon as he begins to study the lesion and the effect of this in producing the abnormal function. Or he finds at the clinic that a patient presents himself with a swelling at a certain part of the body. He endeavors to distinguish by palpation whether the swelling is due to an exudation in the interstices of the tissue, or to the dilatation of an artery or to a new formation of tissue. He cannot learn this by being told that an exudation gives a certain sensation to the hand, an aneurysm another, a neoplasm another. He must know why this is the case, and the "why" again recalls all his previous knowledge. If the swelling be due to a neoplasm, he must know not its name but its character, why in the one case a simple excision is all that is necessary, and in another that the tissue must be removed from far around the tumor together with all the lymph glands connected with the part in which it originated.

Pathology serves this most important purpose, that it serves to connect the so-called theoretical branches of medicine with the so-called practical. The student gets a broader point of view, and when this is once acquired it serves him as a basis for his reasoning powers. Moreover, the student learns in the study of pathology the methods of investigation of disease. If he is to practise his profession in any other way than as a day-laborer, he will constantly meet cases which present to him new features. He must know how to make a post-mortem examination himself, and must know how to appreciate the relation between the anatomical lesions and symptoms. He must learn to investigate the causes of the conditions which he has found. If he is to become a teacher in any department of medicine, it is necessary that he should acquire the broader point of view, and the methods of reasoning which come from research combining clinical phenomena and anatomical changes. With regard to how the student shall be taught pathology, there are many questions to be considered. Laboratory instruction combined with experiments and demonstrations should form the basis of his instruction. He should be taught first those general pathological processes on which anatomical alterations depend and their causes, how the anatomical structure of an organ

may modify the character of the lesion. Lectures are necessary to amplify what he has learned in the laboratory. Demonstrations should have the end of showing him what changes are produced in man by such processes. If possible, he should study with the demonstration the microscopic changes which have produced the gross appearance. In his laboratory course the student should thoroughly study one disease. He should inoculate an animal, study the clinical course of the disease, the lesions and their mode of production, and the relation of the lesions to the clinical phenomena. In an ideal course on pathology the student should have the opportunity for pathological work throughout his third and fourth year, when clinical instruction is given the most attention. He should during this time have a place in the laboratory where he can under some supervision carry on more or less independent work. He should have the opportunity to make for himself examinations of sputum, urine, blood, etc. Having followed a case through its clinical course and through the autopsy, he should have the opportunity to study for himself the lesions in connection with the clinical phenomena. It is only in this way and by keeping constantly in his mind the connection between the lesion and the clinical phenomena of disease that the student appreciates that pathology is not the study of macro- or micro-scopic changes in organs, but of life under abnormal conditions.

Original Articles.

REMARKS ON THE PATHOLOGY OF EPITHELIOMA OF THE UTERUS WITH REFERENCE TO OPERATIVE INTERERENCE.

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EPITHELIOMA of the cervix presents several anatomical types which are due to the fact that the cervix is lined by two different types of mucous membrane; one being the pavement epithelium which is in the vaginal portion, while the second is the cylindrical epithelium, found in the cervical canal. Two classifications may be made: the first is based on the histological structure of the neoplasm, and the second is based on its anatomical form. The first of these is the least useful, surgically speaking, because it gives only a slight idea as to the nature of the affection. Pavement-cell epithelioma develops on the cervix and easily invades the vagina and the bladder; its evolution is perhaps a trifle less rapid than that of cylindrical-cell epithelioma, although on that point there is nothing exact.

The cylindrical-cell epithelioma, on the contrary, is more malignant, but its seat in the beginning, which is in the centre of the cervix, will necessitate its destroying the uterine neck almost entirely before it can reach the vagina or the parametrium, and consequently this fact demonstrates why the disease may be present for some little time and still be in a proper condition for a radical operation.

We will only consider the various anatomical types which have been established from clinical observation, and at a period when the neoplasm is still in a state of

only slight advancement, because towards the end of its evolution the invasion of the neighboring organs causes it to lose its principal characters.

There are three types, namely, the vegetating type, ulcerating type, and lastly, the interstitial type. We will also rapidly review the different varieties which are very infrequently met with, and which belong both to the cervix and to other neighboring organs, such as the corpus uteri and the vagina; but the clinical symptomatology, which is very characteristic, assigns them a separate place in the history of epithelioma of the uterus. As De Sinety states in his article in the "Dictionnaire Encyclopedique," all the anatomical varieties of uterine cancer are similar both as to their progress and their gravity. Nevertheless, two principal factors appear to contribute to increase or to diminish the progress of the neoplasm, and its generalization. On the one hand, we must consider the invading growth, and on the other, the tissues which are invaded, and which will react against this invasion in a different manner, according to their anatomical structures.

The anatomical element of the neoplasm has a more or less considerable proliferating power, according to its age, and whether it is going towards the adult type, or whether it remains in the embryonic condition. Clinical observation shows that in the larger number of cases certain forms have a slower evolution than others; for example, the cavernous form has a far more rapid progress than the vegetating type.

We will first consider the vegetating type. It begins in two ways, either producing papillary productions at once which form on the surface of the cervix, or by a hollow irregular ulcer, with raised infiltrated borders, which is very difficult to distinguish from a benign ulceration of the cervix. No matter what may have been the manner of the commencement of the epithelioma, it ends by the formation of a papillary fungus production, which bleeds on the slightest contact, and whose volume may increase to such an extent that it may fill the vaginal cavity.

The cervix on which the neoplasm is implanted may be only partially invaded, but more commonly both lips are infiltrated and the orifice of the cervix is hidden in the midst of the neoplasm. At length a time comes when the cul-de-sacs are invaded, and when this has taken place the disease will invade the periuterine tissues with rapidity.

This form seems generally to have a less rapid progress than that which will next be described, due perhaps to the fact that it has less tendency, at least in the beginning, to invade the deeper structures, and it would appear that the epithelial proliferation has a tendency to extend *outwards* rather than *inwards*. The general condition of the patient is less rapidly affected, perhaps for the reason that kidney lesions are less rapid to appear, and that the absorption of septic products is less easy than when we have the irregular cavities which we find in the ulcerating type of epithelioma.

The vegetating type is one of the forms of epithelioma in which the surgeon has to operate very frequently, and where we expect to obtain very excellent results. For example, Terrier, in a series of 17 hysterectomies performed for cancer, operated on four cases of the vegetating type. The results that he obtained were as follows: One patient had a recur-

rence of the growth immediately, but nevertheless, lived for fourteen months, and the case was unfavorable because the left cul-de-sac was invaded at the time of the operation. The second case lived fifteen months. The third case lived two years, while the fourth one was alive three years and five months after the operation.

The writer operated on a case of the vegetating type of epithelioma of the cervix, and which was limited to the latter organ, in August, 1895; the patient was seen two months ago and found in perfect health, and no recurrence at the site of the operation, which was a vaginal hysterectomy. A second vaginal hysterectomy was performed for this type of epithelioma in the fall of 1896 by the writer, on a patient aged twenty-nine years. This patient, who was seen within the last six weeks, is in a flourishing condition, and no local return of the trouble.

Certain reported cases would appear to demonstrate that the disease may be less malignant than is usually admitted.

Richelot related the cases of two women who presented a vegetating epithelioma of the cervix, and whose lesions were in reality far less than would have been supposed by an examination. In both patients the relapse was expected to be rapid and fatal, so that for one of them a simple, palliative operation was proposed but vaginal hysterectomy was done at the patient's urgent request, and nevertheless the recurrence did not occur for six months in the first and two months in the second.

The writer has operated on several cases of the vegetating type of epithelioma, in which he did not feel justified in performing a vaginal operation, that is to say, hysterectomy, because the broad ligaments were already invaded by the neoplasm, and he simply resorted to the free use of the curette, scissors and Paquelin thermo-cantery, removing as much of the cervix and interior of the corpus uteri as was possible. One patient survived seventeen months, a second patient thirteen months and six days, a third patient eight months and a half, while the fourth is still living, although the operation was performed nearly seven months ago.

From these facts it would appear to the writer that in the vegetating form of epithelioma of the cervix, which has already extended too far to justify vaginal hysterectomy, a free removal of the growth is the proper measure, because the patients will have a far easier and much less painful death, if during the remainder of their lives they keep the vaginal canal in a condition of relative cleanliness, by the use of daily vaginal injections of some reliable antiseptic.

It is very evident that in many cases in which the vegetations on the cervix have reached very large proportions, still the penetration of the neoplasm into the depth of the tissues is not always in relation to the size of the cervical neoformation. Consequently the surgeon is justified in operating on these cases no matter what size the cervical neoplasm may be, but on the condition that the vaginal cul-de-sacs and parametrium are free from the neoplastic infiltration. Vaginal hysterectomy, and for that matter an abdominal hysterectomy, does not always give a perfect result as regards the recurrence of the growth, but as vaginal hysterectomy is both a simple and benign operation in properly selected cases, it is the one, according to the writer, that should always be selected.

Considering now the cavernous type, it may be said that this is found in epithelioma which makes its appearance in the mucous membrane, which is in the first place infiltrated by the neoplastic-cell elements, and later on ulceration takes place. The neoplasm then penetrates into the subjacent tissues, and will then produce circulatory troubles, such as hemorrhage, which is the result of the loss of tissue from ulcerative process. Ulceration thus produced extends in depth, and after having destroyed the cervix is not long in invading the bladder, rectum and broad ligaments.

In the form of epithelioma which we are now considering, the neoplasm extends in two different directions; namely, towards the corpus uteri and the periphery of the cervix. The vagina, on the contrary, is only involved at quite a late date, and we will meet with epithelioma which have entirely destroyed the cervix although this destruction is not visible by vaginal examination.

The cavernous type of epithelioma is usually made up of cylindrical cells, at least that has been the experience of the writer. Its progress is rapid, and a fact which is the most unfavorable for the patient is that it is usually insidious in its development, so that when these unfortunate subjects come to consult the surgeon the cervix will be found destroyed, and in many cases the bladder or rectum is already involved. At any rate we believe that this is the type of epithelioma in which operative interference is rendered extremely delicate because the uterus cannot be lowered by the forceps, and also because we cannot get a solid catch upon it on account of the friability of the tissues. If a cervix, which is the seat of this type of epithelioma, is seized by the forceps, and even only very slight traction be made, it will tear, and this applies also to the dissection, necessary in vaginal or abdominal hysterectomy, and consequently either operation is extremely risky.

This is a point which should never be forgotten by the surgeon, because in operating on such cases he will probably make a very incomplete dissection of the mass, and will surely leave pieces of the neoplasm in the wound, which will become the starting point of a recurrence almost immediately after the operation has been completed.

The question arises, Does this anatomical type of epithelioma have any particular indications as regards operation? And in reply we would say that interference should be based on the extent of the destruction of the cervix, which will be made out by dilating the cervical canal in the first place, and then afterwards examining the interior of the uterus with the finger. If the ulceration is not very deep, and if we may still expect an easy dissection of the mass; if we find no thickness in the parametrium, which would lead us to suppose that the neoplasm had extended upwards, we may still conscientiously operate, on the condition that the uterus is *movable* and that the *vaginal walls are elastic and supple*. On the contrary, when there only remains a thin shell of tissue, which represents the cervix, we should abstain, because in this case the invasion of the growth has extended deeply into the surrounding tissues, and when we are dealing with this variety of epithelioma we should consequently interfere with extreme prudence, and only so after we have employed all the means of exploration which are commonly used, and if there is

the slightest doubt as to a deep extension of the growth, it is the writer's opinion that we should abstain from any radical operation.

Tillaux believes that in the ulcerating form of epithelioma practically nothing is gained by operation, while surgical interference is followed by unexpected success in cases of the vegetating type. The interstitial or parenchymatous form is met with the most infrequently of all types of epithelioma of the uterus. It begins by ulcerated foci which are found in the interior of the cervix, and which send out prolongations in every direction.

This manner of growth is extremely unfortunate, because the physician when consulted finds much difficulty in ascertaining the condition of the parametrium because the cervix is found very lumpy, but — are these lumps situated in the interior of the cervix, or are they seated in the cellular tissue which is adjacent to the cervix? This is just the point that is often very difficult to decide upon, and this type of epithelioma may be combined with the preceding types, more especially the vegetating form.

The diffusion of the neoplastic prolongations in all directions renders this type of epithelioma rapidly inoperable, and when a cervix is found infiltrated throughout with an irregular and lumpy surface, the writer considers that palliative treatment is the only one of avail as the neoplastic infiltration has extended beyond the limits reached by the knife.

Besides the anatomical forms of cervical cancer that have been mentioned, we would draw attention to other more infrequent varieties, which are not limited to the cervix, and a few words regarding them may not be out of place here.

In the first place we have the primary vaginal epithelioma, which is very infrequent, and in this case the neoplasm arises in most instances in the posterior cul-de-sac and invades both the cervix and the neighboring parts of the vagina, producing very extensive ulcerations.

The question of vaginal hysterectomy will not be often raised in this form, because the extension of the neoplasm is more especially in the vagina, which is nearly always greatly invaded when the patient consults the surgeon, and usually amputation of the cervix is the only operative interference indicated. Although the uterus is only slightly invaded by the neoplastic infiltration, hysterectomy would give no result because the lesion is more especially located in the vaginal walls.

The last type to which we would call attention is the epithelioma of the isthmus, which has recently been studied by Kaminer. This form of epithelioma is, so to speak, situated in both the cervix and the corpus uteri, and gives rise to symptoms which are quite characteristic. The commencement is in most cases very sudden, and combined by intense expulsive pains, which gradually increase with the expulsion of the neoformed mass, and after a certain time an abundant, fetid, glairy mass is expelled, after which the patient is much relieved. These symptoms are quite sufficient to put the surgeon on the track of a diagnosis.

The seat of the lesion facilitates the retention of the uterine secretion, and explains the dilatation of the uterus, and the symptoms that are present. This form of epithelioma should be treated by hysterectomy. *A priori* the lesion being situated in the centre of the

uterus, is situated at some distance from the neighboring organs, which it will only attack after a certain lapse of time, and consequently a complete vaginal hysterectomy will in a large majority of cases be followed by a complete success, as the utmost limits of the neoplasm will have been included in the operation.

The painful symptoms to which this form of epithelioma gives rise will allow us to make an early diagnosis and operate in favorable conditions.

Kaminer relates two cases of this form of neoplasm. Both patients underwent hysterectomy, with the following results: in the first case the disease reappeared one year after the operation, and death occurred twelve months later, while in the second case a recurrence took place five months after the operation.

The writer has mentioned vaginal hysterectomy, but not with the desire to bring about a discussion relative to the abdominal and vaginal routes, but he personally considers the vaginal method the proper one when a radical operation is indicated in cases of epithelioma of the uterus.

In closing this paper, the writer would say that there is one condition to which he would take exception as regards operative interference, and that is when we can detect only a few isolated hard lumps of metastatic deposits in the parametrium, the uterus being free and the vaginal walls exempt from any trace of neoplastic invasion. In such cases an attempt at a radical operation may be reasonably tried, and under favorable circumstances these enlarged, infiltrated lymphatic glands may be extirpated along with the uterus; but we consider, as has been stated, that the vaginal or abdominal methods are out of the question and it is in such cases that Kraske's operation has its indications.

We are fully aware that many surgeons have condemned this method, particularly at the fifth German Gynecological Congress, held in 1893; but there can be no doubt, to those familiar with this operation, that it gives a most perfect view of the field in which we are working, and for this very reason all diseased structures can be removed. Moreover, the vessels are easily ligated and an important point is, that we can see and dissect out the ureters without detriment to them. Then, too, in Kraske's operation peritoneal infection from the neoplasm is to be less feared than in the vaginal and consequently in this respect is far superior to the abdominal route.

We admit that the Kraske is a difficult and long operation, but its results are good when applied to pathological conditions as above indicated.

A CONSIDERATION OF THE PROFESSOR GÄRTNER-MOTHER-MILK.¹

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THIS latest addition to the innumerable lists of the so-called infant foods has been used in Germany since 1894, but was not introduced into this country until 1897, when a factory for its production was established in Orange County, New York.

The method of its preparation, as described by Gärtner, is as follows: Equal parts of cows' milk and sterilized water are placed in a Pfannerhaus centrifuge,

¹ Read before the Clinical Section of the Suffolk District Medical Society, January 19, 1898.

which makes from 4,000 to 8,000 revolutions per minute. This separator consists essentially of a steel drum which revolves on its axis. The mixture is separated into a lighter inner portion (the "fat milk") and a heavier outer portion (the "skim milk"). These are then drawn off separately in equal portions. It is evident that the percentages of fat, sugar, proteids and ash in the mixture of milk and water put in the centrifuge are just half those of the original milk. It is claimed that by the process of centrifugalization practically all of the fat is driven into the inner portion, while the other constituents remain, as before, evenly distributed throughout the mixture; that is, the inner layer, or "fat milk," contains all but one-tenth or two-tenths percent. of the fat and half the proteids, sugar and salts of the milk, while the outer layer, or "skim milk," contains only one-tenth or two-tenths percent. of the fat and half the proteids, sugar and salts of the milk. The outer layer also contains the extraneous matter. The above statements must be, I think, accepted as essentially correct.

The inner layer, or "fat milk," forms the basis of the food. It is claimed that the percentages of fat and proteids thus obtained are identical with those in healthy human milk. As the percentage of sugar is much lower than that in human milk, enough milk-sugar is added to give the proper proportion. As the reaction of this food is alkaline, while that of cows' milk is acid, an alkali must also be added. Nothing is said about this, however, and I do not know the nature of the alkali. The food is sterilized and sold in "hermetically sealed" tin cans containing a third of a litre, or about ten ounces.

The following are some of the claims made for this food: "It is identical in appearance, taste and analysis with healthy breast milk."

"The fat is not separated from the cows' milk, but remains in its original natural emulsion."

"It is thoroughly sterilized and will remain pure and sweet for an indefinite time in almost any temperature."

"It is cheap relatively to its value as a food, and there is no waste in using it."

To substantiate the claim that the analysis of the Gartner-Mother-Milk is identical with that of healthy breast milk the following table is given —

	Fat.	Casein.	Salts.	Sugar.
Human milk	3.10	1.55	.25	6.20
Gartner milk	3.10	1.55	.25	6.20

This can be accepted only as a correct comparison of certain human milks with certain samples of Gartner milk, and not as a general rule. It is evident from the process of manufacture that the percentages of fat and proteids in the "Mother-Milk" must vary directly with those of the cows' milk used. The percentages of these substances in cows' milk are not constant, however, but vary. The average analyses as given by various authors are as follows:

	Fat.	Proteids.
Botch	4.00	4.00
Holt	3.50	4.00
Baginsky	3.40	3.50
Professor Gartner-Mother-Milk circular	2.50	3.60

In making comparisons, Gartner seems to have as a rule adopted Baginsky's formula, probably because it contains lower proteids. The percentages of fat and proteid in the Gartner-Mother-Milk cannot, therefore,

be constant. That this is so is shown by various published analyses.

	Fat.	Proteids.
Professor Gartner-Mother-Milk circular	3.10	1.55
Professor Gartner-Mother-Milk circular	3.10	1.70
Escherich (average of 24 exams.)	3.00	1.76
Poole	3.05	2.09

In the comparative table of the Professor Gartner-Mother-Milk circular the percentages of human milk are given as if constant: fat, 3.10; proteids, 1.55. This is not so, however, as the figures below show:

	Fat.	Proteids.
Professor Gartner-Mother-Milk circular	3.10	1.55
Professor Gartner-Mother-Milk circular	3.10	1.70
Holt	4.00	1.50
Botch	3.00-4.00	1.00-2.00
Adrianse	3.83	.88-1.70
Pfeiffer	3.10	1.94

For purposes of comparison Gartner seems to have followed Pfeiffer, probably because he gives low fat. It is evident, therefore, from the above tables that while the proportions of fat and proteids in various specimens of Gartner-Mother-Milk are the same as those in various specimens of human milk, the percentage of fat is, on the whole, lower and that of the proteids higher than in human milk. The food is unsatisfactory, however, because it is inconstant and because there is no means of knowing the composition of any individual specimen. Moreover, it is insusceptible of modification to suit individual cases. These are very serious defects.

The statement is made that "the fat is not separated from the cows' milk but remains in its original natural emulsion." I am not prepared to contradict this. Poole, however, states that "when cold, part of the fat separates out, forming a layer on top of the liquid." The directions on the can — "Place the can in hot water from three to five minutes and shake well before opening it" — seem to verify this statement.

There is no doubt, I think, that the milk "will remain pure and sweet for an indefinite time in almost any temperature." This can be attained in one of two ways — by the addition of chemicals or by sterilization. It is claimed that nothing is added to the milk, but that "it is thoroughly sterilized." Sterilization to fulfil the above conditions must be at 212° on at least two successive days. Sterilization at this temperature is supposed to cause chemical changes in the proteids which render them less suitable for the infant digestion. It also deprives the milk of the quality commonly known as "freshness," and thus places it in the class of foods whose use is at times associated with scurvy.

The retail price given in the company's circular is fifteen cents a can or \$1.50 a dozen. The retail price given me at Weeks & Potter's, the Boston agents, was twenty-five cents a can or \$2.50 a dozen. A can holds about ten ounces. A baby a month old would use about two cans a day, costing twenty-five cents or more a day; and one eight months old, five cans a day, costing sixty cents or more a day. At this rate it is certainly not a cheap food but a rather expensive one. The average cost of a properly modified milk from a milk laboratory is no greater, and that of modified milk prepared at home much less. These milks, moreover, can be varied to suit the age and individual.

CONCLUSIONS.

The Professor Gartner-Mother-Milk contains only the constituents of cows' milk. These constituents are

present in approximately the same proportions as in human milk. The proportions, however, are not constant and are unknown to the consumer. These proportions are insusceptible of modification. It is not a fresh food. It costs as much or more than modified milk which is freshly prepared and whose proportions can be varied.

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Clinical Department.

PULMONARY TUBERCULOSIS TREATED WITH KOCH'S NEW TUBERCULIN.

BY C. D. NELSON, M.D., GREELEY, COL.

ON July 21st last I began the use of Koch's new tuberculin (T. R.) on two cases. The intervals between the doses were those recommended by Koch. The first dose was one five-hundredth of a milligramme solid substance, as recommended by Koch. The increase in dose was such that the third dose was twice the first, the fourth twice the second, and so on.

CASE I. Physician, aged thirty-one, sent West in 1892 by Dr. F. C. Shattuck for pulmonary tuberculosis, bad prognosis given.

Examination by Dr. Jesse Hawes, July 21, 1898. A little active trouble at left apex; about half of the left lung and two-thirds of right still good; expectoration about one ounce in twenty-four hours; tubercle bacilli fairly numerous.

On August 20th, after a month of treatment, when the individual dose had risen to one-fourth of a milligramme and the whole amount given was .85 mg., blood was noticed in the expectoration.

August 22d. Expectoration considerably increased, still a little blood.

August 23d. Slight hemorrhage, a half ounce.

August 24th. Hemorrhage, two ounces.

August 28th. Hemorrhage, four to six ounces.

September 3d. Expectoration rather more purulent; no blood.

About this time there was evident improvement in the patient's strength, appetite and spirits; weight increasing.

September 14th. Chest examined by Dr. Hawes. He reports condition decidedly improved.

A dose of 15 mg. solid substance was reached October 17th. As this produced quite a reaction, with rise of temperature and prostration, the dose was dropped to 10 mg. Doses of this size were given till December 8th, when the supply gave out, and I was advised that no more was to be had. As the strength and spirits were improving and the cough diminishing, it had been intended to go on longer with the treatment.

CASE II. Miss D., aged 29, came West in September, 1895. In November, 1896, I found numerous tubercle bacilli in her expectoration. The chest signs rather indefinite.

Two days after beginning the use of the tuberculin

I went over her chest. Inspiration rather harsh over left front; few sub-crepitant râles in right axilla; nothing else found. No cough for five weeks.

The tuberculin was used in this case more with the hope of killing off the bacilli that might be present than with the expectation of improving her strength or general condition. The dosage in this case was the same as in Case I, except that it was run right on up to 20 mg. and stopped. When the doses got up between one-half and one milligramme, her cough came back, but soon subsided. There was no hemorrhage. The last dose (20 mg.) gave a decided reaction; prostration, chills and vomiting followed the next day by a temperature going up to 100.5°. The temperature soon came down. The prostration lasted three or four days.

After about a month of treatment she began to feel better, as did Case I. After two months of treatment she declared she felt better than she had for four years.

The injections were always somewhat painful in both cases—at times distressingly so. After some of the injections, especially as the doses grew larger, a lump would form where the needle was introduced. Some of these would not be wholly gone in a month. There were no abscesses. In both cases the morning temperature was quite low, as a rule. A temperature of 96° F. was fairly common. The thermometer used had a Kew verification. In Case I the morning temperature was 95° on two occasions. On both these days he went on about his duties as usual.

At present the two cases are in about the same condition as at the conclusion of treatment. Case I still coughs, and his expectoration contains numerous tubercle bacilli.

It may be said in conclusion that "T. R." seemed to help these cases, though it did not do all that was hoped for.

POST-OPERATIVE NEURASTHENIA.¹

BY S. A. LORD, M.D., BOSTON.

THE following cases, from Dr. Putnam's clinic at the Massachusetts General Hospital, seem worth reporting briefly. They illustrate the fact that very unpleasant nervous conditions can arise after justifiable operative procedures.

CASE I is that of M. P., aged twenty-nine, married. She is an American and by occupation a type-writer. Four months ago she was operated upon by an expert gynecologist. He did a ventro-fixation to relieve the principal symptom, that of pain in the back, and in the left hip and thigh. Suppuration occurred and there remains a small sinus.

The above-mentioned pain has disappeared since the operation. There exists, however, besides annoying stretching and tugging sensations in the region of the scar, a whole group of extremely distressing neurasthenic manifestations.

The patient is now subject to attacks of severe dizziness, beginning with a sensation as of a blow received in the head, after which the patient falls, at other times the premonitory symptom is the feeling of a "great wave coming from the stomach and then spreading all over her."

She is troubled with nausea, with feelings of intense oppression and suffocation, and her sleep is poor. These and other less marked but still very harassing phenomena of semi-hysterical character combine to make a clinical picture, which is that of a miserable woman.

¹ Read before the Clinical Section of the Suffolk District Medical Society, January 19, 1898.

CASE II is that of F. H., aged thirty, married. She is an American. She came to the nerve room complaining of general weakness, "dizziness and fulness" in the head and a host of other symptoms of the neurasthenic type. She is decidedly hypochondriacal, and has one or two odd ideas regarding the presumed entrance of a pin into her head and the existence of a "clot on the brain,"—these worrying opinions having close association with various peculiar and more or less exactly localized cephalic sensations of pressure and the like.

The expression of the face and the whole attitude of the patient is that of hopelessness and of unwillingness to admit that improvement in her own condition is possible.

Her troubles date from a gynecological examination two months before entrance. This apparently was made with due care—the patient was assured that nothing serious was the matter, and no especial discomfort was experienced, nevertheless, she was much frightened—so she said—both in anticipation and at the time of the examination. She had previously been told by her friends that she "might be injured." This examination was made on account of the patient's sterility. She denies, however, any especial worry because of this sterility, and will not admit that she is a nervous woman.

A liability to occasional headache is acknowledged, though; and the patient's statements incline the hearer to believe her of neuropathic tendency.

Careful questioning seems to leave no doubt that in these cases the operative procedures may be regarded as exciting causes at least.

The statement of the woman first mentioned, namely, that she far preferred the pain of the period before operation to her present state of nervous breakdown, is not needed to convince us of the reality of this suffering.

Medical Progress.

RECENT PROGRESS IN SURGERY.

BY H. L. BURRELL, M.D., AND H. W. CUSHING, M.D.

(Concluded from No. 23, p. 536.)

OSTEOPLASTIC CLOSURE OF BONE CAVITIES.

OLIER²⁴ speaks of the great difficulty experienced in the healing of wounds and the filling in of cavities produced by the removal of diseased spongy tissues from bones, especially the long bones, and, after studying the divers phases of the question, comes to the following conclusions:

(1) Cavities in bones, whether abnormal, accidental, pathological, or following operations, fill up slowly, especially when they are deep, on account of the rigidity of their walls, which do not retract. They cannot be filled by the granulations of medullary origin which form on their walls, at least when the subjects are not young and in a plastic condition. In tuberculous cases the difficulty is always very great.

(2) In the long bones, as the tibia, after removal of the medullary substance, the repair is so tedious that it seems almost impossible to heal them. Of the short bones, the calcaneum is especially exposed to this slow repair where it has been reduced to but a thin wall.

(3) The method to employ in healing these cavities is to remove or make movable one of the walls to permit, in the first case, the periosteum to reach the opposite wall, and, in the second, to place the osseous walls in contact.

(4) When one of the bony walls is removed, the corresponding periosteum and soft tissues which cover it are pressed into the centre of the cavity and come in contact with the opposite wall. The strength of the bone is momentarily decreased by this procedure, but the formation of osseous tissue on the inner surface of the periosteum finally gives the necessary solidity. This is particularly true in cases of hypertrophy of the bone from osteomyelitis.

(5) Outside of these cases, where hypertrophy has taken place it is better not to sacrifice the bone, but to form a flap which shall, according to the case, approach or be fixed to the opposite wall by metallic sutures. As soon as the flap has been detached the cicatrization of the wound may be left to the granulations, for while they are without effect upon rigid walls, they act through the cicatricial contraction upon the movable wall. This release of one wall may be effected in many cases at the time the bone is operated upon and the cavity cleared. This precaution prevents the necessity of a secondary intervention.

(6) The lateral flap is the easiest and most generally applicable. Many forms of flaps may be required, as cases differ. One may have recourse to flap taken from other parts of the same bone or from neighboring bones, and changed by gliding or by partial torsion of the periosteal pedicle. This flap should always remain connected with the bone from which it was removed by periosteum and the soft parts, and as well nourished as possible to lessen the chances of necrosis of the flap. Where the bone is superficial the flap should be, as far as possible, osteocutaneous.

(7) Bone-grafts, homoplastic and heteroplastic, may be employed, but only exceptionally, where the means to repair the loss of bone substance cannot be found in the bone itself or any of the adjacent bones.

(8) In certain cases where the cavities are intra-osseous, with very thin walls in an atonic condition, it is best to proceed immediately to a resection of their entire thickness or to the total ablation of the bone, if it is a bone which is of but secondary importance to the solidity of the part.

OSTEOPLASTIC SPLITTING OF BONES.

Cramer²⁵ states that Bardenheuer has further developed the method reported by him in 1894 of a partial section in the long axis of various bones for the obliteration of defects. In his new method the bones of the metatarsus were split lengthwise to fill up the gap in an adjoining metatarsal. A good result was obtained in five cases. The method was extended still further on the metacarpus. In four cases a metacarpal bone having been split lengthwise, one-half was bent over, overcoming the deformity resulting from the extirpation of a neighboring metacarpus. In these cases, also, the results were very satisfactory. Section of the bone is easily performed with a fine sharp chisel, the bone being left intact at one of the joint surfaces. The displaced half is made somewhat thicker than the remaining one. Necrosis of the displaced bony fragment was never observed.

In the case of deformity following the loss of the second metatarsal and of the proximal two-thirds of the first metatarsal, the third metatarsal bone with the adjoining external cuneiform was bodily separated as far as the region of the metatarso-phalangeal joint, at

²⁴ Rev. de Chir., 1897, No. 4; American Journal of the Medical Sciences, August, 1897, p. 229.

²⁵ Verhandlungen der deutschen Gesellschaft für Chirurgie, XXV Congress, 1896; Annals of Surgery, May, 1897, page 666.

which point the metatarsal remained attached to the neighboring soft parts. Both bones were then dislocated, bringing the external cuneiform in front of the middle cuneiform.

The remaining stump of the first metatarsal was refreshed, and fastened to the dislocated third metatarsal. Again the result was perfectly satisfactory. The principle was further developed in cases where the proximal phalanx together with its metatarsal or metacarpal bone was wanting, by splitting the corresponding adjoining bones and bodily transposing them. The process was similarly employed in defects of the radius.

RADICAL CURE OF PERFORATING ULCER OF THE EXTREMITY.

Chipault²⁶ reports seven attempts to cure perforating ulcer of the foot by stretching of the plantar nerves, with only one failure. All of the patients were laborers, and the ulcerations were deep, and in some instances associated with osseous lesions. All were in bad hygienic condition. In every case the nerve was stretched either under the internal malleolus, or external malleolus or at the border of the Achilles tendon; in a word, at a moderate distance from the trophic ulceration. At the same time that the nerve was stretched, the ulcer was thoroughly curetted, necrotic bone removed, and the thickened edges of the ulcer excised, thus transforming a round infected ulceration into an oval wound, whose edges were sutured together. In this manner the most obstinate cases may be successfully treated.

TEMPORARY INTRA-ABDOMINAL COMPRESSION OF THE AORTA ABOVE ITS BIFURCATION IN OPERATIONS FOR PELVIC AND ABDOMINAL TUMORS.

In connection with the details of a successful operation for double malignant ovarian tumors, with many adhesions, Lennander²⁷ describes a method of digital intra-abdominal compression of the aorta which he employed with very gratifying results. The deductions which he draws from this case are the following:

(1) A wide compression on the aorta above its bifurcation makes the entire true pelvis practically bloodless.

(2) If the common iliac artery is compressed on the vertebræ or the os sacrum above the sacro-iliac synchondrosis, the half of the pelvis is rendered nearly bloodless.

(3) The compression was employed for three-quarters of an hour in this instance, with no serious effects; it should not be necessary longer.

(4) When the compression ceases, a rapid lowering of the heart's action, due to vasomotor dilatation, should be guarded against by a normal salt solution, intravenous injection.

(5) In resections of the spleen or the extirpation of a fixed spleen, the arteria linealis at the upper end of the spleen may be compressed against the vertebræ.

(6) In severe and difficult operations upon the kidney, where the peritoneal cavity is necessarily opened, the compression of the renal vessels against the vertebræ will be of service.

The author adds a foot-note of the fact, just dis-

²⁶ *La Presse Méd.*, May 29, 1897; *Medical News*, August 14, 1897, p. 209.

²⁷ *Cent. f. Gynak.*, No. 17, 1897; *American Journal of the Medical Sciences*, February, 1898, p. 216.

covered by him, that Senn had previously suggested intra-abdominal compression of the aorta in military surgery.

DIRECT INTRA-ABDOMINAL FINGER-COMPRESSION OF THE COMMON ILIAC ARTERY DURING AMPUTATION AT THE HIP-JOINT.

McBurney²⁸ in an article on this subject states that loss of blood during the performance of amputation at the hip-joint is of especial importance because almost all of the cases in whom this operation is indicated belong to one or two classes: (1) those suffering from extensive, often long-continued, disease, and who are therefore feeble and anemic; (2) traumatic cases, weakened by the shock of the traumatism, and usually anemic from considerable blood loss. Therefore, in amputation at the hip-joint every precaution should be taken against hemorrhage and against sepsis.

He states that in the last three of his cases he has adopted a method which is simple and effectual, and all three patients have recovered.

First, as much blood as could be safely returned to the body from the limb to be amputated, by means of position or elastic bandage, was so returned. Then an incision was made through the abdominal wall about one and a half inches internal to the anterior spine of the ilium.

In the last two cases this incision was made by separating the aponeurotic and muscular fibres according to the plan suggested by the author in operating for removal of the appendix in the interval between attacks. This, of course, eliminates the possibility of subsequent hernia. Through this incision an assistant passed his index-finger and readily reached and compressed the common iliac artery.

Entire absence of blood-current beyond the point of compression was readily maintained throughout the amputation which followed. The operative field was entirely free from bandage or appliance of any kind, the opportunity to maintain complete asepsis was therefore free from complication, and the amputation was made without other loss of blood than that which took place from the vessels of the limb below the point of amputation. The author deems the method commendable on account of its simplicity, its certainty, its aseptic character, and because it can be applied to cases which require that the deeper tissues should be severed at an unusually high level.

THE OPERATIVE TREATMENT OF IRREDUCIBLE SUBCUTANEOUS FRACTURES.

Ransohoff²⁹ in an article on this subject believes that in certain cases an interference before union had resulted would be preferable to the certainty of deformity, and reports seven cases which have come under his observation in which the fracture was exposed and directly treated.

The author states that his experience or what he has gleaned from literature does not warrant him in coming to conclusions that are final. Nevertheless, he believes that it would be justifiable to submit in a tentative way the following postulates:

(1) The conversion of a simple fracture is justifiable when other means to secure the best end results fail.

(2) In fractures of the diaphysis of the tibia,

²⁸ *Annals of Surgery*, May, 1897, p. 610.

²⁹ *American Journal of the Medical Sciences*, October, 1897, p. 417.

femur, humerus, and clavicle in which insurmountable longitudinal displacement or axial rotation has taken place, immediate operation or mediate operation before definite union has occurred is indicated.

(3) In epiphyseal separations, when reduction cannot be otherwise effected, an early operation is justified.

(4) Fractures complicated with dislocations irreducible by other methods warrant operative interference.

(5) The involvement of a joint, except probably in the case of knee and hip, do not, *per se*, militate against operation if this is otherwise indicated.

(6) If extensive comminution is present, as in compression or crushed fracture, operation is contraindicated.

(7) Special precautions against infection must be taken, in connection with which should be borne in mind the dangers of too firmly closing a wound and the advantage of temporary tamponade and secondary suture.

(8) Reckless and indiscriminate resort to the operative relief of deformity in recent simple fractures is to be condemned, since there would be few fields of surgery, in the event of an unsuccessful intervention, in which the contrast could be greater between the good intended and the harm done.

THE TREATMENT OF FRACTURE OF THE CLAVICLE BY INCISION AND SUTURE.

Spencer,⁸⁰ in an article on this subject, gives an account of an operation performed by Dr. Hearn (Dr. Spencer assisting) at a clinic in the Jefferson Medical College Hospital in the summer of 1896. An incision, three inches in length, was carried directly to the bone and in the direction of its long axis. By exposing the part our attention was first directed to a piece of thin bone, which had been broken off from the posterior inferior surface of the inner fragment and was free in the wound. It was shaped like a right-angled triangle; the hypotenuse measured one-half inch; the base and perpendicular each measured about three-eighths of an inch; in thickness it measured one-eighth of an inch. This piece was removed. Another fragment of the bone, which was a little larger than the one just spoken of, was found to be separated from the posterior superior surface of the outer fragment, though attached to it by the periosteum. This piece was replaced and held in position by throwing a ligature of kangaroo-tendon around the outer fragment, including the detached piece of bone, and tying. In this case, the subclavius muscle was found to be well up between the fragments. The inner end of the outer fragment was long, ragged and very oblique, and was caught in the few remaining fibres of the subclavius muscle, which fortunately kept the sharp end of the bone from coming in contact with the subclavian and axillary vessels. Fresh lacerations of these fibres showed that the fragment was gradually working its way through, and in a short time either direct puncture, pressure or ulceration of one of the vessels would have ensued. This fragment was brought up and the ragged point cut away, after which both fragments were brought together and the periosteum was sutured with fine catgut. The skin-wound was closed with Halsted's subcuticular suture and the arm was dressed in the Velpeau position, with a light plaster-of-Paris dressing. His highest temperature was 99° F., which was on the night of the operation. It dropped to normal the next day and re-

mained normal. In three weeks there was good bony union; no pain or deformity.

THE DISINFECTION OF HANDS.

This subject, which is of such great importance in clinical surgery, has been carefully studied by Weir⁸¹ whose studies lead him to the following conclusions:

(1) That the solutions of corrosive sublimate are unreliable.

(2) That such disinfection is far best applied, and in the order named, by the use of nascent chlorine, alcohol, or potassium permanganate.

(3) That chlorine is satisfactorily evolved by the conjoined use of moistened chemical chlorinated lime and crystalized sodium carbonate.

(4) That of these three procedures the chlorine treatment is least hurtful to the hands, alcohol the most trying.

The author has devised a simple, easy and inexpensive yet efficient method of obtaining the sterilization by nascent chlorine.

After the usual scrubbing with soap and water, and the use of green soap, and cleaning the periungual spaces, one or more large crystals of carbonate of sodium (washing soda) are taken in one hand and covered with about a tablespoonful of bleaching powder (chlorinated lime), and enough water is added to make a thin paste, which at first feels warm, and from which fresh chlorine gas comes. This is rubbed for two or three minutes over the hands, nails and forearms until a creamy paste is formed or until the sodic crystals impart a cool sensation or until the rough grains of bleaching powder have mostly disappeared, when the hands are washed in sterile water.

A NEW INSTRUMENT FOR TREPHINING.

Dahlgren⁸² describes an ingenious instrument which he has devised, which has the essentials of simplicity and efficiency combined. After a small trephine opening has been made and the dura mater pushed inward with a probe, it cuts a linear channel through the skull in any direction the operator may desire. It is especially adapted to the formation of the skin-periosteum bone-flap employed in Wagner's method of cranial resection.

The instrument consists of a bone forceps whose jaws do not cross, but separate beyond the point of articulation. One arm carries a sharp hook which articulates at the extremity of the jaw and passes through between the two cutting prongs of the other jaw. The bone is grasped and cut through by the hook while pressed against the outer surface of the other jaw. By means of a set screw the instrument can be accurately adjusted to the thickness of the bone to be cut through.

SILVER WIRE AS A SUTURE IN SURGERY.

Dr. B. Crede, attending surgeon to the Carola Hospital of Dresden, in an address delivered before the National Surgical Society of Germany, at its twenty-fifth annual convention, held at Berlin on May 28, 1896, discussed silver and its salts, the citrate and lactate, which he termed the itrol and actol, and pronounced them the most powerful of all the surgical antiseptics yet discovered.⁸³ It appears that his interest in silver as an antiseptic grew out of the observa-

⁸¹ Medical Record, April 3, 1897; American Journal of the Medical Sciences, September, 1897, p. 350.

⁸² Cent. f. Chir., 1896, No. 10; American Journal of the Medical Sciences, August, 1897, p. 233.

⁸³ Medical News, May 29, 1897, p. 706.

⁸⁰ American Journal of Medical Sciences, April, 1897, p. 445.

tions of his father, the elder Crede, on the value of the nitrate of silver in the treatment of inflammatory affections of the eyelids of infants. Nitrate of silver was not a success as a surgical dressing, however, on account of its chemical instability and its corrosive action on mucous membranes. While visiting the Johns Hopkins Hospital, in Baltimore, Dr. Crede was impressed with the use of silver foil as employed by Dr. Halsted, in affording an antiseptic covering for small or closed wounds. His next experiment, therefore, was made with metallic silver, using it as an antiseptic dressing for wounds. When applied to a sterile wound, he found that it remained unchanged, was non-irritating, and formed a thoroughly aseptic dressing. On the other hand, when applied to an infected wound, the products of bacterial life oxidized the surface of the silver, and, entering into combination with the argentic oxide, formed argentic albuminates, which had powerful antiseptic properties. Careful analysis developed the fact that it was lactic acid which was developed in the microbic secretions, and that when this combined with the silver oxide there was developed a lactate of silver, and in this resided the antiseptic properties.

In this discovery lies the explanation of the value of silver wire as a suture. In aseptic, sterile wounds it is non-irritating and remains unchanged. In infected wounds it supplies in itself the base of a powerful antiseptic, combining with lactic acid, and forming thus in the tissues the lactate of silver.

A CHEAP AND SERVICEABLE SURGICAL SUTURE.

Gubaroff²⁴ describes a new method for preparing ordinary linen thread for surgical use in such a manner that it does not kink, twist or knot, and is readily rendered aseptic.

The thread is deprived of its fat by boiling in caustic soda, then washed in water and sterilized, and laid for a few days in alcohol. It is then placed in a five-per-cent. celloidin solution (Schering), with equal parts of alcohol and ether; from this solution it is laid out and allowed to dry while stretched. The threads contract and are shining, do not absorb or twist, and may be readily threaded. The sutures may be sterilized, but cannot be kept in alcohol, though they may be placed in bichloride or carbolic solutions. Sublimate (1 to 1,000) may be added to the celloidin solution, making it antiseptic.

Reports of Societies.

SUFFOLK DISTRICT MEDICAL SOCIETY. THE SECTION FOR OBSTETRICS AND DISEASES OF WOMEN.

C. H. HARE, M.D., SECRETARY.

REGULAR meeting, Wednesday, January 26, 1898, DR. TWOMBLY in the chair.

DR. WM. M. CONANT read a paper on
TWO TWISTED PEDICLED OVARIAN CYSTS, WITH
COMPLICATIONS.

DR. MARCY: I came in too late to hear the first of the paper but the subject is always an interesting one. I am reminded since listening, of two cases of twisted

pedicle worth putting on record as a contribution to this subject.

The first, a woman of perhaps sixty-five, with a very large ovarian cystoma, for which she refused operation. She had been several times to see me, declared she was perfectly comfortable and well, and would not have anything done. Later on the tumor began to shrink, and she thought the abdomen was distinctly smaller. Intense pain, with chills, suddenly supervened. The fourth day I saw her in New Hampshire. She was very ill, had a high temperature and was looking extremely bad. The abdomen was opened. Already plastic lymph had been thrown out in certain parts about a thoroughly necrosed cyst, and the line of demarcation was clear close to the uterus. The pedicle was sutured and the tumor removed. Its weight was about thirty pounds. She made an easy recovery and continues well.

The second case was interesting because of the clinical history. Age about thirty-five, married, in good general health. For some time had noticed a rapidly enlarging abdomen. The patient went to the Massachusetts Hospital and was examined at the clinic. She said she was examined by at least a dozen people. The abdomen presented a movable tumor, symmetrical, about the size of pregnancy at term. On the way home in the train she was seized with very severe pain, went to bed, the next day had a chill, and the fourth day I saw her and operated. She was then in extremely bad condition — nausea, vomiting, high fever, small rapid pulse, etc. A tumor of fifteen pounds in weight was necrotic, with a distinct line of demarcation. In this case, as in the first, it was a double twist. She believed the rotation was caused by the examination at the clinic, as she was well except the discomfort of her condition until she went to the hospital.

I believe twists of the ovarian pedicle are not seen as often as in earlier years. Cases such as the last described by Dr. Conant are rare. Twists of pedicled small cystoma are not likely to occur. In the older days my friend Dr. Kimball met with twisted pedicles oftener than at present, because the tumors were always left until the conditions were extreme, and then there were greater chances for rotation. I have never seen a cyst so small as the last one reported where there was a twist of the pedicle.

DR. CUMSTON: I had one case when I was assistant almost exactly like the first case reported by Dr. Conant, except that the patient was not pregnant. She was sent to the hospital by a country physician, and the diagnosis was probable intestinal obstruction. I cannot detail this case as I have forgotten much in the patient's history; but I do remember that it was referred to in a clinical lecture of mine which appeared in the "International Clinics." She stayed in the hospital several days under observation. On Sunday afternoon I was called by the nurse to see this patient, and found her in a state of collapse. On making an incision the first thing we saw in the wound we took to be, as did Dr. Conant, a large distended gangrenous gut and regretted we had delayed operating. When we rolled it out, however, it was an ovarian cyst as large as a child's head at term. It was black. We have seen one other case. A patient came to the dispensary who had been seen at the City Hospital some months previously, where the diagnosis of ovarian cyst had been made. It was right-sided, and she came to the dispensary with fever, pain in the iliac fossa on

²⁴ Cent. f. Chir., October 31, 1896; American Journal of the Medical Sciences, February, 1896, p. 226.

the right side. On palpation we found a mass which felt rather pasty, and I made the diagnosis of possible appendicitis; she had colicky pains and diarrhea. We operated next day. It was the beginning of torsion; it was about half-way round, not a full twist.

The diagnosis of torsion of the pedicle in ovarian cysts is certainly very obscure in a great many cases. A large number have been reported by writers who really see a very great number of patients in the course of a month. We find that Labbé, of Paris, has indicated a diagnostic sign which possibly may be of some value to remember; namely, in two cases Labbé found an intense systolic murmur on auscultation over the pedicle and there was an undulation *en masse* in the tumor which corresponded to the influx of blood from the general circulation. Another point occurs to me, and that is the malignant degeneration of these cysts. We have seen several cases of malignant degeneration of ovarian cysts in which the diagnosis of chronic twisted pedicle had been made, and Olshausen, of Berlin, and many other prominent men have made it on several occasions and we think it is well to bear the question of malignant degeneration in mind when considering the question of chronic torsion of the pedicle, for in the cases referred to by Dr. Conant, he was dealing with the acute type, and consequently cachexia was not present.

DR. COBB: It was my privilege to see Dr. Conant's second case at his first visit and to assist him at the operation. I think most of us are led to believe that torsion of the pedicle in ovarian cyst causes very acute symptoms, that peritonitis follows very rapidly; the pain is acute and sudden; vomiting and all the symptoms of shock are present. I do not think that any one would have been justified in suspecting twist of the pedicle in the second case. It was for all the world a classical case of pelvic abscess from some cause. The woman had been sick for four or five weeks before she was operated, and had had no sudden or very severe pain attended with collapse and shock and vomiting; on the other hand, there was a history of possible septic infection of the uterus or irregular menstruation. The examination pointed to pyosalpinx or appendicitis. It was a very instructive case to me for those reasons.

DR. C. G. CUMSTON read some

REMARKS ON THE PATHOLOGY OF EPITHELIOMA OF THE UTERUS, WITH REFERENCE TO OPERATIVE INTERFERENCE.¹

DR. MARCY: I am sure in the main I quite agree with the position the reader has taken. In the class of cases where the uterus is freely movable, uninvolved except the cervical portion, vaginal hysterectomy is an easy operation; but unfortunately that is the class of cases that comes only to the observer, as a rule, who has his own clinic, that is to say, patients who come to him as the family physician. Unfortunately in the clinics of a large city the great majority of cases are too far advanced to give the best results. The rank and file of the profession are trained to recognize the disease earlier than formerly, but cancer of the uterus is in its earlier stages often difficult to determine, and every effort should be made to establish an early diagnosis.

There is another class of conditions where we may discuss the advantages between the vaginal and abdom-

inal route. In illustration is a case in my hospital at this moment. I removed the uterus about three weeks since because of a comparatively limited disease of the cervix. One of the most difficult cases I have operated on by the vaginal route; and why? An old pelvic inflammation which bound the uterus firmly. It would have been less difficult to attack it from the other side. I saw a patient yesterday, not quite well, where the abdominal route was undoubtedly the only one any one would advise. There was a cyst in the right broad ligament, and a small fibroid tumor in the fundus, with a pronounced cervical epithelioma, which fortunately could be removed and leave a healthy border of tissues about it.

The following is a case of the class of proliferating papillomatous type of growth, which is worth putting on record. A patient of twenty-eight, married several years, in excellent general condition, never pregnant, brought by her physician two years ago. The vaginal vault was filled with the growth. Fortunately the vaginal mucous membrane was not invaded. We removed the uterus, and the operation was not very difficult. Ten days later she had intestinal obstruction. I opened the abdomen at midnight, and freed a loop of small intestine adherent in the pelvis. She made an easy convalescence. One year later I dissected out a recurrent mass in the cicatrix of the vaginal vault — the first of this sort I have seen that did not return quickly after its removal. Six weeks ago she was again sent to me with intestinal obstruction. We removed five inches of the large intestine just above the sigmoid flexure, joined with a Murphy button and she was doing well until the end of the third day, when acute intestinal obstruction supervened, and again I opened the abdomen at midnight and freed an adherent loop of small intestine in the pelvis; but unfortunately, forty-eight hours after, death followed. The condition of the growth in the intestine rather surprised me. The growth had invaded the muscular coat of the intestine for about two inches in length and was covered by healthy peritoneum. The lumen was the size of the little finger. The autopsy showed that there was no return of the disease in the vaginal vault, and that the pelvic glands were not involved.

Hysterectomy for the removal of malignant disease is a very large subject. I think it must be left in a general way to the judgment of the competent operator as to the route he will take. In the majority of instances, if he sees his patient early, epithelioma of the cervix should be removed by vaginal hysterectomy rather than by the abdominal route — not because it is better surgery; because blind surgery is, as a rule, bad surgery — but because usually it can be pretty safely done, and the recovery is so much more satisfactory than when the abdomen has been opened. After vaginal hysterectomy of the ordinary type you may be sure you have a small risk of death following, whereas in the abdominal route, although the cases often seem as if they were more easily cared for and the result more satisfactory, the danger is certainly greater.

DR. CUMSTON: I must take issue with Dr. Marcy on the question of vaginal hysterectomy. I cannot allow it to be said that vaginal hysterectomy is a blind operation. Personally I can see just as well when I am doing a vaginal operation by the French method with the French instruments as I can when I am doing an abdominal hysterectomy, and I feel sure that with the proper valves, with skilled assistants —

¹ See page 584 of the Journal.

like those no doubt, Dr. Marcy has—he would find that vaginal hysterectomy was as open an operation as the abdominal route. I feel, that as I am doing both abdominal and vaginal operations, although few in number, I am not too narrow-minded in the opinions I uphold.

Secondly, my great objection to the abdominal route in removing an epitheliomatous uterus is the great ease with which we inoculate the peritoneal cavity with the growth. I have seen one case, and I think two, where the wound became the seat of carcinoma, the abdominal incision became the seat of carcinoma; and with all the care that an operator may exercise in removing that cancerous mass through the abdominal opening, he is very apt to run a great risk from either inoculating the peritoneal cavity, which is almost inevitable, or else the incision in the skin. I wish to agree with Dr. Marcy when it comes to removing a carcinomatous uterus with complications in the adnexa. The operation of choice is the abdominal route; we could not do otherwise; it would make a vaginal hysterectomy altogether too complicated to remove the diseased organs in that way. I do think, as Dr. Marcy has said, that the general practitioner is getting to recognize malignant growths of the uterus earlier than I suppose they did formerly, but it, nevertheless, remains a very sad fact that a large number of cases still comes to the surgeon that are past the period when we can positively say a radical operation is going to save them.

DR. TWOMBLY: I think that we feel, as gynecologists, that if we can substitute vaginal hysterectomy for an abdominal operation, that cases will come to us, and we can tell them that the operation is not as severe as it would be if they had to have their abdomen opened. They will oftentimes submit to an operation by the vaginal route, because there is no scar and no disfigurement of the person, when they would not submit to the abdominal operation. This fact must be taken into consideration.

DR. CUMSTON: I am glad you brought that question up. Women do not like to have scars on their abdomen; that was one of the conditions brought out when vaginal hysterectomy by the French method was being discussed here some two years ago, and it was laughed at in this very room, sir; and I am very certain that there are a large number that would consent to operation when you can assure them that no abdominal scar will be seen and when they know they are not obliged to have their abdomen opened.

DR. MARCY: When there is little hope of cure of the disease, the surgeon prolongs life and adds greatly to the comfort of the patient by using the curette freely and thoroughly cauterizing the cavity. Dr. Sims used escharotics freely, especially chloride of zinc. I prefer to pack the cavity with a thin layer of wet cotton and to this apply the cautery. By it steam is freely generated, and I think the heat penetrates the parts more deeply and with greater safety.

THE WAR AFFECTS DISPENSARY PRACTICE.—Dispensary practice in New York has been affected by the war, according to the *Medical Record*. In a down-town district a falling off in attendance at one of the dispensaries was noted for a few days, which could not be accounted for until it was found there was a "run" on a neighboring bank and the patients were busy drawing out their deposits.

AMERICAN MEDICAL ASSOCIATION.

FORTY-NINTH ANNUAL MEETING, DENVER, COL.,
JUNE 7-10, 1898.

FIRST DAY.—GENERAL SESSION.

THE Association met in Broadway Theatre on its forty-ninth session; and in the absence of the President, SURGEON-GENERAL DR. GEO. M. STERNBERG, of Washington, D. C., the meeting was called to order by the First Vice-President, Dr. JOSEPH M. MATHEWS, of Louisville, Ky.

Prayer was offered by REV. W. F. McDOWELL.

Eloquent addresses of welcome were delivered by DR. J. W. GRAHAM, of Denver, on behalf of the local profession; on behalf of the State, by GOVERNOR ALVA ADAMS, and on behalf of Denver and its citizens, by MAYOR W. S. McMURRAY.

ADDRESS OF THE PRESIDENT.

This was read by COLONEL A. W. WOODHULL, of Denver, in the absence of the author.

At the outset Dr. Sternberg expressed his high appreciation of the honor conferred upon him and his thanks for the same.

He congratulated the Association upon the favorable prospects for a pleasant and profitable meeting in the beautiful and hospitable city of Denver.

The Association, as the representative body of American physicians, would no doubt continue to increase in membership and in influence. The day was perhaps not far distant when no reputable physician would be willing to confess that he did not belong to the American Medical Association, and when no progressive physician could afford to do without the *Journal*. And in order that every physician of good professional standing may enjoy the privileges of membership, he thought it desirable that permanent members should be elected, upon application, without reference to their membership in State, county or district medical societies, when they present satisfactory evidence that they are graduates in medicine, of reputable standing in the profession, and are willing to subscribe to the Code of Ethics of the American Medical Association. In other words, he would not exclude a reputable physician from membership because the State, county or district medical society to which he belonged declined to adopt the Code of Ethics. A liberal and progressive spirit would do much towards promoting the growth and influence of the Association. The medical profession in this country had suffered more in his opinion from the ignorance of some of its members who hold diplomas from regular schools of medicine than from the attacks of those who were called irregulars or quacks. Scientific medicine, being founded upon demonstrable truths, must in the end maintain itself and secure the confidence of the people.

Positive denials of the value of the well-established achievements of scientific medicine were often made, unfortunately too often by men who were authorized to attach the letters "M.D." to their signatures. This led to the frequent repetition of the old question, "Who shall decide when doctors disagree?" No matter how well a fact may be established by repeated experiments or by the common experience of the profession, some doctor may be found who, through ignorance or that obliquity of mental vision which

characterizes the crank, will deny its truth. Then, there are doctors who deny the value of vaccination, others who fail to recognize any value in results obtained by experiments on the lower animals, others who deny the etiological rôle of well-known pathogenic bacteria, etc. As a result, the anti-vaccination and anti-vivisection societies were able to fortify their position by quoting the opinions of medical men of more or less repute. But opinions are of no value when opposed to evidences, and it seems to Dr. Sternberg that those familiar with the evidence would do well to give to the public concise and comprehensible statements, suitable for publication in newspapers and popular magazines, setting forth the facts and the evidence upon which these facts are accepted by well-informed physicians. But in doing so great care should be taken not to make any assertions that are not based upon reliable data.

As was to have been expected, the x-ray has already been made a source of revenue by more than one pseudo-scientist. The following account of the *modus operandi* of its supposed therapeutic action has recently been published in the newspapers:

"After the Crookes tube is excited by the coil the magnetic lines of force are projected down in the same manner as they pass off from a magnet, and traversing the intervening spaces, pass through the body down to the floor, and back to the coil and tube again, completing the circuit.

"The x-ray is electrostatic in character and of a very high potential. With every discharge from the Crookes tube oxygen is liberated in the body, as well as the surrounding atmosphere, which, combining with nascent oxygen, forms ozone. It is due to the electrolysis produced in the body that we are able to destroy the bacilli in contagious disease, ozone being the most powerful germicide known."

In commenting upon the above, Dr. Sternberg first remarked that he did not fully understand why the magnetic lines of force were reflected back by the floor, completing the circuit. Inasmuch as the x-rays pass through wood, this mysterious action of the floor appears to call for some further explanation. He passed by the ingenious explanation of the formation of ozone, as a result of the action of the x-ray, and called attention to the mistaken statement that ozone "is the most powerful germicide known."

The experiments of Fränkel show that the aerobic bacteria grow abundantly in the presence of pure oxygen, and some species even more so than in ordinary air. It was formerly supposed that ozone would prove to be a most valuable agent for disinfecting purposes, but recent experiments show that it is not so active a germicide as was anticipated, and that from a practical point of view it has comparatively little value.

Lukaschewitch found that one gramme in a space of a cubic metre failed to kill anthrax spores in twenty-four hours. The cholera sporule in a moist state was killed in this time by the same amount, but fifteen hours' exposure failed to destroy it. Ozone for these experiments was developed by means of electricity.

Wyssokowicz found that the presence of ozone in a culture medium restrained the development of the anthrax bacillus, the bacillus of typhoid fever, and others tested, but concludes that this is rather due to the oxidation of bases contained in the nutrient

medium than to direct action upon the pathogenic bacteria.

The conclusions reached by Nissen, from his own experiments and a careful consideration of those previously made by others, is that ozone is of no practical value as a germicide in therapeutics or disinfection.

Dr. Sternberg said that unfortunately lack of information relating to the definite results of scientific investigations was not confined to the non-medical members of the community.

With the progress of scientific medicine we have improved methods of teaching, and it is now generally recognized that reading medical books and listening to lectures are not a sufficient preparation for the practice of medicine, any more than the reading of books on navigation would be for the responsible position of captain of an ocean steamer. It is for this reason that we insist upon the study of anatomy in the dissecting room, the teaching of methods of diagnosis and treatment at the bedside, and of chemistry, physiology and pathology in the laboratory. The painstaking work and attention to details required of students engaged in chemical, physiological, bacteriological or histological studies, and the failure in their attempts to repeat an experiment or demonstration if through haste or carelessness they neglect any step in the necessary technical process, constitute an invaluable lesson. Indeed, the scientific medicine of the present day can only be taught by such methods; and the scientific physician of the future must make his way to fame and fortune by travelling this somewhat difficult and time-consuming road.

Reference was made to Pasteur's treatment of hydrophobia. This, in his opinion, was one of the great and well-established achievements of scientific medicine. Scientific medicine must be founded upon an exact knowledge of the structure and functions of the human body in a healthy condition and of the changes in structure and function which result from various diseased processes; of the causes, natural history and regional distribution of the diseases which afflict mankind and the lower animals; of the toxic action of various substances from the animal and vegetable kingdoms, and of the use of these and of other non-toxic substances, physical agents, etc., in the treatment of disease and of the prevention of disease by disinfection, quarantine, protective inoculations, etc.

Dr. Sternberg mentioned the investigations of Löffler and Froesch, published in a recent number of the *Centralblatt f. Bakteriologie*, relative to the etiology of foot and mouth disease of cattle, and cited briefly the results obtained by these investigators.

Recently several additions had been made to the list of specific therapeutic agents, and there was good reason to believe that further discoveries in this direction would be made as the result of investigations now being conducted in pathological laboratories in various parts of the world. Among the most important recent discoveries in this department of scientific medicine, he mentioned the use of thyroid extract for the cure of myxedema and the antitoxin of diphtheria. The discovery of the diphtheria antitoxin promised to be as important for therapeutics as the discovery of the anthrax bacillus was for etiology, and will no doubt henceforth be regarded as one of the most notable achievements of the century. While the practical results of this discovery had been notably in the case of

diphtheria, some success had been attained in the specific treatment of tetanus, streptococcus infection, pneumonia and even in tuberculosis.

A recent discovery of considerable importance from several points of view was the so-called Widal reaction.

The curative action of thyroid extract in myxedema was well established, and some success appears to have been attained in the treatment of Addison's disease by an extract from the suprarenal bodies. The active substance in the thyroid has been called iodothylin. According to Professor Chittenden, this substance is a "non-proteid cleavage product of a more complex body, naturally present in the gland and characterized by containing both iodine and phosphorus." He considers it pretty thoroughly established that iodothylin "possesses all of the peculiarities associated with thyroid therapy."

The speaker next directed attention to prophylaxis, saying that here the progress of medical science had been even more prolific in practical results. Where thousands had been saved by the timely administration of suitable medicines, or by a skillfully performed operation on the part of the surgeon, tens of thousands had been saved by preventive medicine. Preventive medicine was to-day established upon a strictly scientific foundation.

The mortality from tuberculosis was constantly diminishing in our large cities, and the complete destruction of the infectious sputa of those suffering from pulmonary tuberculosis would no doubt go a long way towards the extermination of this fatal disease.

Finally, there was no room for creeds and pathies in medicine, no more than astronomy, geology or botany. Every man was entitled to his own opinions upon any settled problem; but if he entertained an opinion in conflict with ascertained facts, he simply showed his ignorance. There was no restriction placed upon any physician who graduates from a regular school as to the mode of treatment he should pursue in a given case. But if his patient dies of diphtheria because of his failure to have administered the proper remedy, or if he recklessly infects a wound with dirty fingers or instruments, or transfers pathogenic streptococci from a case of phlegmonous erysipelas to the interior of the uterus of a puerperal woman, it would appear that the courts should have something to say as to his fitness to practise medicine. There was, however, nothing in the Code of Ethics which should prevent him from associating with reputable practitioners of medicine; but no matter where or when he obtained his medical degree, he could scarcely be said to belong to the modern school of scientific medicine. We must not fail to recognize, however, that the progress of knowledge has been so rapid, that it is impossible for a busy practitioner to keep pace with it, and that even the requirement now generally adopted by our leading medical schools, for a four years' course of study, is inadequate for the attainment of such a degree of professional knowledge and practical skill in diagnosis and therapeutics as is desirable for one who intends to practise scientific medicine.

Secretary Atkinson was instructed to telegraph the thanks of the Association to Dr. Sternberg for his instructive and able address.

REPORT OF RUSH MONUMENT FUND.

This was read by Dr. A. L. GIBON. Of the amount pledged the last year by various State Societies at the

Philadelphia meeting, only \$162 has been paid during the past twelve months. Colorado announced that it had \$2,000 to add to the fund; the New York State Medical Association \$2,000, and the Trustees of the Medical Society of the State of Pennsylvania, to whom was referred the report of Rush Monument Committee, recommended to make good the pledge made at Philadelphia, that the sum of \$2,000 be appropriated to the fund, and that the amount be held in trust by the Board of Trustees of this Society until a contract for the erection of said monument is accepted. When these sums shall have been paid the fund would amount to \$10,424.44, and there were still over forty States and Territories to be heard from. The committee nominated for the position of Treasurer Dr. Holton, of Vermont. The report closed with a resolution asking that necessary travelling expenses incurred by the treasurer of the Rush Monument Committee, and those of the chairman or secretary of the Committee, be paid by the treasurer of the Association.

After the reading of the report, Dr. Gordon, of Maine, said that the Maine Medical Association had appropriated \$100 toward the fund; Dr. Porter, of Indiana, had secured \$500 from the Indiana State Medical Society; Dr. Cole, of California, for that State, \$110; after which the report of the committee was accepted.

REPORT OF TREASURER.

By Dr. HENRY P. NEWMAN, of Chicago. He congratulated the Association upon its constantly increasing growth and prosperity. The year which closed January 1, 1898, added 1,500 new members, and during the same time the Association had dropped for non-payment of dues only 75 members. Receipts during the time while he had had the honor of being treasurer had increased from \$12,695.58, in 1894, to \$32,200, in 1897. Balance on hand, January 1, 1898, was \$14,092.85, with a sinking fund of \$3,000.

Report was accepted.

REPORT OF SECRETARY.

This was read by Dr. Atkinson, of Philadelphia. He stated that, in accordance with a resolution adopted at the last meeting, he issued a circular letter to each State and Territorial medical society, notifying them of action taken relative to funds for the Rush Monument, and the desire to raise a fund of \$100,000 for that purpose. Replies were received from several, that a special committee had been appointed to take charge of the matter, and it was expected that such committee would report at this meeting.

In accordance with the By-Laws, the Secretary notified all in arrears for three years, and in many instances the arrears were paid.

On motion, report was accepted.

(To be continued.)

A BONE-SETTING STORY. — A story of bone-setting is that of the Scotch laddie, Jock by name, who, after being carried by his mother, as an unwilling patient, to the bone man to get his leg set, was asked if the manipulation had hurt him. "No," said Jock, "it dinna hurt me." — "I told you it wadna be painful," said his mother. — "Ah," replied Jock, "nae wonder. You see, mither, I just let him fumble wi' tha sound leg!" — *Medical Press and Circular.*

Recent Literature.

The Diseases and Injuries of the Conjunctiva, especially the So-called "Granulated Lids." By JOHN H. THOMPSON, M.D. Pp. 216. Kansas City: Hudson-Kimberly Publishing Co. 1897.

This little book deals with a subject which has been equally well presented in many of the special textbooks of to-day. The aim has evidently been to divest the text as much as possible of technical terms and to so describe the different pathological processes of this membrane which "are not understood by the majority of physicians" in such simple language that they may "be prepared for every patient." The various methods of treatment recommended are those in general use, and if at all complicated are gone into with great minuteness. The expression "Granulated Lids" might better have been omitted from the title-page.

W. D. H.

Lectures on the Malarial Fevers. By WILLIAM SYDNEY THAYER, M.D., Associate Professor of Medicine, Johns Hopkins University. New York: D. Appleton & Co. 1897.

Those already acquainted with Dr. Thayer's previously published work on malarial fever, will welcome the appearance of this volume, the best treatise on the subject with which we are acquainted, and those who do not already know his previous monographs should get the present book and study it; such study they will find both pleasing and remunerative.

Atlas of Methods of Clinical Investigation. With an Epitome of Clinical Diagnosis and of Special Pathology and Treatment of Internal Diseases. By DR. CHRISTFRIED JAKOB. Authorized Translation from the German. Edited by AUGUSTUS A. ESHNER, M.D. With 182 colored illustrations upon 68 plates, and 64 illustrations in the text. Philadelphia: W. B. Saunders. 1898.

This is a medical hand-atlas. The title-page sufficiently describes this book, a small octavo of 250 pp. The design is to teach by pictures rather than by text; in other words, text is added to the pictures instead of the pictures being added to the text. The lithographic plates are very good, and both plates and text seem to be accurate.

Twentieth Century Practice. An International Encyclopedia of Modern Medical Science. By Leading Authorities of Europe and America. Edited by THOMAS L. STEDMAN, M.D. In Twenty Volumes. Volume XIII, Infectious Diseases. New York: William Wood & Co. 1898.

The first division of this volume, on "Ptomaines, Toxins, and Leucomains," is by Dr. Vaughn, of Ann Arbor, than whom there is hardly any one in this country more competent to deal with these subjects.

The second division, on Infection and Immunity, is from the pen of Dr. Ernst, of the Harvard Medical School. The subjects embraced under this head are among the most important in modern medicine and cover the field of the greatest progress of the last twenty or twenty-five years. Dr. Ernst recognizes the extent of the field and the necessary limitations of allotted space. He has made a good selection of the material at his disposal and a good presentation of:

"first, the experiments leading to our present ideas upon infection, and the methods by which it may occur; and second, the consideration of immunity (a) natural and (b) acquired."

Water-Borne Diseases are discussed by the late Mr. Ernest Hart and Dr. Solomon C. Smith, of London. Mr. Hart's active and constant interest in the sources and means of prevention of these diseases — especially cholera and typhoid fever — is well known, and Dr. Smith's collaboration, as the editor of *Hospital*, especially at a time when Mr. Hart's health was insecure, is natural. Malaria, dysentery, diarrhea and yellow fever are included under this head.

The Duration of the Periods of Incubation and Infectiousness in Acute Specific Diseases is treated by Dr. Dawson Williams, of the East London Hospital for Children, in a short chapter of twenty pages.

Dr. John Moore, of Dublin, presents a long and thorough chapter on Small-pox. Professor Brouardel, of Paris, contributes an article on Vaccina, and Dr. Jules Comby, of the Hôpital des Enfants, Paris, closes the volume with a chapter on Mumps.

This volume, of 621 pages, is one of the shorter, but one of the most interesting of the series.

Egbert's Hygiene and Sanitation. A Manual of Hygiene and Sanitation. By SENECA EGBERT, A.M., M.D., Professor of Hygiene in the Medico-Chirurgical College of Philadelphia. In one handsome 12mo volume of 360 pages, with 63 engravings. Philadelphia and New York: Lea Brothers & Co.

This Manual is decidedly one of the best American works of its class which has yet appeared. The subject matter is well arranged; care has been taken that each topic should be clearly treated, and that the facts presented should be in harmony with the rapid progress of medical science. The illustrations have been selected with special reference to the text, and are all excellent.

The topics treated are as follows: Bacteriology, the Air, Ventilation and Heating, Water, Food, Stimulants and Beverages, Personal Hygiene, School Hygiene, Disinfection, Removal and Disposal of Sewage, Vital Statistics; Examination of Air, Food and Water.

The chapter upon water is treated with special fullness and accuracy. The book may safely be adopted as an excellent text-book for colleges and higher schools.

Brief Essays on Orthopedic Surgery. By NEWTON M. SHAFFER. New York: D. Appleton & Co.

This monograph has especial interest. It may be of great value in the future history of the contest between the general practitioner and the specialist. Dr. Shaffer has devoted himself so strenuously to the development of his specialty, that he naturally has its interests at heart; he, perhaps, is over-anxious as to its future, fearing lest if the lines are not sharply drawn, it be absorbed in the larger work of general surgery to the detriment of the thoroughness of the work of this important special branch, which, however, judging from its literature and the *Transactions* of its Association, seems well able to care for itself.

The question involves a consideration of the whole matter of the relation of the specialties to general medicine, and is one which will probably settle itself by usage regardless of the arguments of disputants.

The writer is a well-known leader in his specialty, and states his opinions independently and clearly.

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PRESIDENT ELIOT'S SPEECH AT THE MASSACHUSETTS MEDICAL SOCIETY.

At the last annual meeting of the Massachusetts Medical Society, President Eliot, as is his custom, gave the members much food for thought in his after-dinner remarks. He directed attention to what is of vital importance to the profession at large, and to each individual member of it, namely, the possibility of improvement in medical teaching. That there has been a greater change in medical instruction during the last few years than in almost any other line is sufficiently self-evident. We have, in great measure, passed the age of empiricism and are at least entering on a career of exact observation in the interpretation of the problems which medicine offers for solution. As a natural consequence of this tendency, the laboratory has come to supersede the didactic lecture to a continually greater extent. These facts President Eliot pointed out, and insisted that future growth lay along the line of more detailed observation, as brought about by the use of the microscope, a point of view with which no liberal-minded man, who has the smallest conception of the meaning of progress, will be disposed to disagree.

Acknowledging this general fact, we may well ask ourselves, Must the so-called didactic lecture go, and all our lecture-rooms be forthwith converted into laboratories? or has the lecture without demonstration still a place to fill? This matter came up for discussion at the last meeting of the German Congress for Internal Medicine, and somewhat different opinions were held by those who spoke. Von Ziemssen maintained that a full course of didactic lectures, covering the field of special pathology and therapeutics, was desirable, on the ground that a text-book could never replace the personality of the lecturer and the impressiveness of the spoken word. This, we may say in passing, must depend wholly upon the lecturer, who only too often is neither magnetic nor impressive, but merely soporific in his effect upon his auditors. It is

said that Billroth even could not attract students by merely didactic lectures. Von Jaksch partially agreed with von Ziemssen, but thought that clinical and didactic lectures should be incorporated; that purely didactic lectures had had their day, and that every medical lecture now must be a demonstration. Schultze thought that didactic lectures were no longer practical.

In Germany, therefore, we may see that the trend of opinion is decidedly away from the unmodified lecture. The same is certainly true with us. Each year in our better medical schools sees a diminution in the number of lectures and a decided increase in the number of hours devoted to the laboratory. We certainly hope with President Eliot that this good work may go on, but we still think there is a distinct, if subordinate, place for the lecture, and, in one sense, a place of growing importance. It is a common experience with teachers in so rapidly expanding a science as medicine to find that their students are often dazed by the very completeness and detail of their text-books. They find themselves quite lost in the maze of facts presented to them, and altogether unable to discriminate the essential from the unessential. Just here the didactic lecturer is of incalculable service. He is supposed to be, and certainly should be, a master of his subject. His experience from long familiarity with his special field makes him a competent leader. His function is therefore clear, namely, to guide his students in their own work, to single out of the vast array of facts those which are important, and to impress upon the student the significance of the relations of his subject, in other words, to discriminate for him, since he is not yet ready to discriminate for himself. In this way we are convinced a teacher is of service. He has become in a very special sense a director of minds less trained than his own, and thereby fulfils a function which is more and more needed. The young student absolutely requires, for example, some one to lead him through the mazes of the nervous system or of the blood diseases. It is wholly unfair to demand of him a comprehensive knowledge of these and many other subjects from his too voluminous text-books. In our opinion the didactic lecture fills this want; the teacher is now a director, rather than an actual repository of knowledge.

President Eliot, finally, dwelt at considerable length on the need of devoted laboratory workers, who were willing to serve their fellow-men through individual research with small hope of financial reward. He expressed the hope that many men of independent means would come to realize the necessity of such work, and would devote themselves to it regardless of its remuneration, with the added implication that those less fortunate in this world's goods would have to seek their sustenance elsewhere. This somewhat ideal point of view seems to us to have several fallacies. In the first place it has never worked to any extent in practice. Our successful laboratory workers are not and have not been men of independent means, and it is al-

together unlikely that they will be more in the future than they have been in the past. To succeed in a laboratory investigation, to accomplish anything really great in the progress of scientific medicine, means a peculiar capacity, which is all too rare, and which, when found, must be encouraged at all hazards. Such a genius for investigation may occur among the sons of the rich, but how often do we find in such cases that the ardor of research is weakened by the other temptations which money brings, and the promise of accomplishment thereby cut off before it has really developed. This is natural and to be expected so long as the public recognition of such service is not forthcoming. It is much easier to lead a regiment than to sit at a laboratory desk, because the one brings recognition and the other does not. Our point, therefore, is that whether a man be rich or poor, his services must, as human nature is now constituted, be materially recognized. If a man be quite independent of any additional income, his self-respect should demand that he be rewarded for his services, and the dignity of his service depends, in good measure, upon such reward. Good work, of whatever sort, the world over, has its corresponding remuneration, and the accident of wealth seems to us to have nothing to do with the real question at issue. Naturally the rich man is more than welcomed into the paths of research, but he should enter them on exactly the same terms as his poorer brother.

The real evil of the situation, we are convinced, lies not in the fact that the rich man is not inclined to enter the self-sacrificing pursuit of original research, but that the poor man is so often forced out of it by the niggardliness of his remuneration. How often do we hear the struggling student bewail his lot, that he is unable to go on with his favorite research because there is no adequate money reward. What we unquestionably need is a public spirit which will recognize the value of research, and will then reward it according to its worth. When society has so far progressed in intelligence that it can always say to the faithful worker, "Your material wants will be amply provided for if your work warrants," we may look for the dawning of an era of enthusiastic investigation. President Eliot's implication, as suggested in his speech, would seem to us to interpose a certain barrier to the accomplishment of this end. We do not want men, whether rich or poor, to work for nothing, but we do want all men to be rewarded in just proportion to their services to society. It does not in the least detract from the dignity of work that it should be rewarded, and it certainly is an essential and proper stimulus. As a faithful laboratory student of many years' standing said to us a few weeks ago, "I know I could do better work if I got more than a hundred and fifty dollars a year."

Laboratory men have, at least, an advantage over the average young lawyers, as referred to by Mr. Chaplin at this same dinner, in that they have plenty of congenial work. The remuneration may be meagre, but they do not have to foment occupation.

THE THERAPEUTICS OF LITERATURE.

NEARLY every physician has the opportunity in his daily work to see the very striking effects of mind over matter; but it is given to the men who deal largely with nervous invalids to estimate the true importance of *printed* matter over mind. As an example, it takes usually but a very few minutes' conversation with the victim of onanistic tendencies who haunts the nervous clinics of our hospitals to elicit the fact that he is under the fearful spell of one of those *chefs d'œuvres* of pamphlet literature that are scattered broadcast by the various institutes which manufacture manhood for the masses. From the pathogenic suggestiveness of these villainous confections of broken type and tired woodcuts upon paper which is unfit even for shaving purposes, to that of the *éditions de luxe* of the septic novelists, with their handmade paper, deckle edges and illuminated type, the gradation is not so steep as might appear at first sight; and it behooves us in our treatment of nervously exhausted patients to select their mental pabulum with as much care as we do their physical.

It should be our first duty to place the works of the so-called medical realists—and especially of those with ultra-alienistic tendencies—at the very head of the *index expurgatorius*. No phobia in the entire category peculiar to the neurasthenic is apt to be so dominant and so persistent as the phobia of insanity, and it requires no effort on our part to imagine the effect produced upon the wretched victim of this phobia by the ravings of the ideal lunatic of the novelist. The latter is never content to portray the commonplace paralytic dement, in whose feeling of expansion and well-being the poor depressed neurasthenic might find a crumb of comfort, nor the well-behaved paranoiac whose crankiness has definite limitations. The lunacy of the medical realist's lunatic knows no bounds, and the prognosis is always hopeless in the extreme. As to the alleged causes of this mental alienation, we cannot better qualify their absurdity than by saying that they are even more absurd than some of those which appear in the annual reports of certain asylums; unrequited love, for instance, being equally responsible for dementia precox and the most violent manias.

Equally pernicious are the "problem" novels, dealing with subjects which may be classed under the general headings of Sex and Soul. Those of the first class are usually either the products of high-grade moral imbeciles or represent the pot-boiling efforts of struggling married authors with large families, and have an especially injurious effect upon hysterical patients with weakened powers of inhibition; those of the second, in which the writer's doubts and fears as to an hereafter are spread over four or five hundred pages of tiresome drool, are not calculated to soothe the mind of the depressed slave of a despotic nervous system, for in them his tortured soul finds no gleam of hope in the possibility of a future existence, *minus* an inquisitorial nervous organization.

What the jaded neurasthenic needs are stories with plenty of ozone in them and a thrill of out-door life that will make his chest expand in sympathetic emulation, just as we grow hungry and find our salivary glands excreting at the perusal of a mere description of a Dickens Christmas dinner. Even modern literature, in spite of its strong tendency toward coprolalia and verbigeration, abounds in tales of marked therapeutic value. In Stevenson the invalid may, in fancy, find for himself an abundance of adventurous healthful travels. He may journey leisurely inland with a donkey, or, on shipboard, feel the dash of the spray in his face and the roll of the vessel under foot. If he be but a poor seaman, and find inland waters more to his taste, he can make his way by canoe from Antwerp to Pr  cy and intersperse the journey with sight-seeing on *terra firma*. Tiring of the Continent, he can forsake his cicerone at Pr  cy and, in a twinkling, join forces with Jerome and his three jolly fellows in their merry holiday trip up the Thames; or if, now, a land trip appeal more strongly to him, he has but to mount his fancy upon the "Wheels of Chance" and follow Wells's heroic draper's clerk on his week's bicycle outing through rural England.

We sketch these few itineraries in barest outline, the therapeutic list is too extensive for us to attempt an enumeration. A well known neurologist in speaking to his students some time ago on the treatment of neurasthenia, emphasized the fact that a large element of a physician's success in the treatment of this unfortunately only too common condition, would depend upon his being both a good cook and a *gourmet*. We desire to express our hearty endorsement of this sentiment, and extend the suggestion to the preparation of mental food, thereby laying upon the physician the additional necessity of being at the same time a literary *gourmet* and a censor; for with such an accomplishment he has a tremendously effective agent at his command with which to eradicate that evil most deadly to the neurasthenic's peace of mind, the evil of morbid introspection.

As a final piece of advice—and this we wish to whisper in the doctor's private ear—we would suggest, when the patient has regained his normal balance of nervous and mental activity, and the crucial moment is approaching for the presentation of the bill, that there is no better method of preparing the way than by putting into his hands Maclaren's "Doctor of the Old School." To the many who have experienced that acute softening of the heart which a reading of this touching biography invariably produces, the wisdom of such a procedure will at once be apparent.

A MASSACHUSETTS HOSPITAL SHIP.

THE steamer *Marmion*, formerly engaged in the fruit trade between Boston and Jamaica, has been secured by the Massachusetts Volunteer Aid Association, and is being fitted out as a hospital ship at the Atlantic Works, East Boston. It is designed to send this floating hospital, under the Red Cross, to Cuban

waters, or wherever she may be most needed, to aid in caring for and transporting sick and wounded soldiers. The vessel is of 800 tons and is in many ways well suited to the purpose. The normal capacity as a hospital would be for about a hundred patients, although in emergencies this number might be somewhat increased. She will be thoroughly equipped as a hospital ship. There will be installed a distilling plant furnishing 2,400 gallons of water an hour, an ice machine with a capacity of 400 tons, and a refrigerating plant.

The name of the vessel will be changed to the *Bay State*. An appropriation of \$50,000 for the purchase of the vessel by the State has been recommended by the Governor, and a resolve to that effect has been introduced in the Senate.

MEDICAL NOTES.

THE CHICAGO SOCIETY OF INTERNAL MEDICINE. — A new medical society has been organized in Chicago, the Chicago Society of Internal Medicine, which will probably become in the near future the Section of Internal Medicine of the Chicago Medical Society, but with autonomy as to internal management. Dr. John A. Robison is President, and Dr. Edward F. Wells, Secretary of the Society.

A SERIOUS ACCIDENT TO A SURGEON. — We learn from the *Medical Record* of a very serious and strange accident which befell Dr. Simmons, surgeon to the New York Polyclinic Hospital, while operating there about a week ago. According to the account given in the daily papers, Dr. Simmons was amputating the leg of a man who had been injured in a cable-car accident. A number of students were watching the operation, and the leg was hanging only by the soft parts, when Dr. Simmons took up the knife to sever the leg from the body. The assistant who had hold of the leg suddenly slipped and fell against Dr. Simmons. His weight pushed the knife against the left wrist of the surgeon, and the hand was nearly cut off. The loss of blood was excessive and Dr. Simmons is now reported to be in a very serious condition.

THE HOSPITAL TRAIN. — The first hospital train of the war will be in service on the Southern Railway to Tampa in a few days. It consists of two dining-cars, ten sleepers and a baggage-car. The sleepers are so arranged as to be able to accommodate 500 men at once, if necessary. One car is arranged as an operating-room, with medicine-chests and stores convenient. The war committee of the National Association of D. A. R. will provide delicacies for the hospitals. It will be used at Tampa as a stationary hospital for the sick and wounded, until it is thought best to go North with the patients. It is expected that this railway-hospital will be of great benefit in carrying the wounded away from Florida. It will carry 20 members of the United States army hospital corps, who will act as nurses, a hospital steward, cooks and the other attendants of a modern hospital. This

will undoubtedly be the most completely equipped hospital train that has ever been put in service.

BOSTON.

THE BOARD OF REGISTRATION VS. A MAGNETIC HEALER.—The Board of Registration in Medicine has just secured the conviction in the Superior Court of Charles S. Dennis, a magnetic healer doing business at 354 Columbus Avenue, Boston. Dennis was fined in the lower court a few weeks ago, but appealed. His defence was that, notwithstanding he displayed the sign "Dr.", he did not in his treatment of the sick use or prescribe any medicine, and therefore was not a doctor of medicine within the meaning of the law. The jury thought otherwise, and a verdict of guilty was entered.

ACUTE INFECTIOUS DISEASES IN BOSTON.—During the week ending at noon, June 22, 1898, there were reported to the Board of Health, of Boston, the following numbers of cases of acute infectious disease: diphtheria 16, scarlet fever 4, measles 70, typhoid fever 5.

NEW YORK.

THE CONSOLIDATION OF BELLEVUE AND THE UNIVERSITY.—The consolidation of Bellevue Hospital Medical College with the medical department of the University of the City of New York, in accordance with the announcement recently made at the University School's Commencement, was definitely consummated on June 17th at the office of William H. Wheelock, President of the Board of Trustees of the University. As previously stated, the consolidated school will be known as the University and Bellevue Medical College, and Dr. Edward G. Janeway, who some years ago resigned the chair of Medicine in the Bellevue School, will be Dean of the Faculty.

THE ANNEX TO THE NEW YORK HOSPITAL.—Plans have just been filed by the architects for the new annex to the New York Hospital. The building will occupy the site of the old Thorn mansion, on 16th Street, in which the hospital library was kept up to the time of its transfer to the Academy of Medicine. It is to be nine stories in height and cost \$300,000. In addition, the hospital authorities contemplate the erection of a six-story ambulance and laundry building and a two-story Governors' building, as well as a number of alterations and repairs in the present hospital buildings, involving in all an expenditure of about \$500,000.

GIFT OF A HOSPITAL TO THE RED CROSS SOCIETY.—David H. King, Jr., of New York, has generously offered his commodious winter residence on Jekyll Island, off the coast of Georgia, to the Red Cross Society as a military and naval hospital, which he engages also to maintain, as long as it may be required for the purpose, entirely at his own expense. On June 17th Secretary Faure, of the Red Cross Relief Committee, reported that the Committee had completed arrangements for the purchase, as a hospital boat, of the yacht *Admiral*, owned by Mr. Comstock, of Boston.

SUICIDE OF A PATIENT AT A HOSPITAL.—During the night of June 16th, Joseph Denn, a patient thirty-eight years of age, who had been taken to the Brooklyn Hospital that afternoon suffering from appendicitis, jumped from the window of the ward on the third floor, to which he had been assigned, and was instantly killed. It is believed by the authorities that fear of an operation was the motive that induced the suicide.

DEATH AT THE AGE OF ONE HUNDRED AND ONE YEARS.—Mrs. Mary Ann Cobb, a native of Virginia, died at the residence of her son in this city, at the age of one hundred and one. She was born on June 1, 1797, and was the daughter of James Wade, who fought through the American Revolution and survived for many years afterwards. Mrs. Cobb removed to the North after the late war, and always enjoyed excellent health until two months before her death.

DEATH OF DR. GILBERT.—Dr. Porteous C. Gilbert, a well-known practitioner of Saratoga Springs, died at his residence there on June 11th, at the age of fifty-seven. He studied medicine before the Civil War, but served from 1861 to 1863 as a Captain in the Fiftieth Infantry Regiment, New York Volunteers. In 1863 he was appointed a surgeon in the army. At the time of his death he was pension examiner of Post James B. McHearn, Grand Army of the Republic.

Miscellaneous.

A BOSTON CITY HOSPITAL OUTING.

The staff of the Boston City Hospital held an outing on the afternoon of June 16th, at the Riverside Recreation Grounds. About ninety persons, representing the visiting and resident staffs and present and past house-officers, were present.

The afternoon was devoted to a series of athletic events. The officers in charge of the games were—Judge, Dr. W. T. Councilman; Umpire, Dr. G. H. M. Rowe; Referee, Dr. H. L. Burrell; Starter, Dr. J. B. Blake; Scorer, Dr. F. B. Mallory; Announcer, Dr. J. C. Munro; Clerk of the Course, Dr. R. M. Pearce; Time-Keepers, Drs. J. L. Morse and C. G. Dewey.

The results in the field and track events were as follows:

1. One-hundred-yard Dash. Won by Symser. Magrath and Lund were tied for second place. Time 11½ seconds.
2. Running Broad Jump. 1, Lund; 2, Morrissey; 3, Nichols. Distance 16 ft. 2 in.
3. Running High Jump. 1, Morrissey; 2, Kingford; Magrath and Lund tied for third place. Height 4 ft. 6 in.
4. Putting the Twelve-pound Shot. 1, Starbird; 2, Morrissey; 3, Blake, J. B. Distance 35 ft. 10 in.
5. Three-legged Race. 1, Lund and Burke, M. F.; 2, Bacon and Carroll; 3, Hurd and Hartwell.
6. Canoe Race. 1, Hartwell; 2, Strong; 3, Mann.
7. Tub Race. 1, Magrath. The others were not "in it" or the tube after the start.

8. Swimming Race. 1, Paul; 2, Truesdale; 3, Starbird.

9. Relay Race. Won by the Pathological team, the "Phagocytes," composed of Bottomley, Kingsford, Magrath and Strong. This was the principal event of the day. The Surgical Side and the South Department each had a team on the track, the former consisting of Brown, Morrissey, Willis and Eddy; and the latter of Smyser, Bacon, Carroll and Cushman. The Pathological team appeared for this event in original costumes consisting of short pink skirts over their running trunks, and other pink and blue decorations. Their first man took the lead at the start and the other men held it to the finish.

Other events were a Canoe Tilt, won by Weil and Cronin, and an impromptu Shot Put between Drs. Councilman and Rowe, in which the latter won.

A prize was awarded to the winner of each event. A prize for the individual scoring the largest number of points was won by Morrissey (Surgical) who made 11 points, while Lund (Surgical) and Magrath (Pathological) were tied for second place with 7½ points each. The prize for the department making the highest score was won by the Surgical Department, 38½ points. The scores of the other departments were: Pathological, 18½ points; Graduate, 12; South Department, 5; Medical, 3.

In the evening the company paddled up the river, in war canoes, and had supper on the banks.

The outing was planned by two committees, one on arrangements, composed of Drs. H. A. Barnes, W. A. Hartwell and L. W. Strong, and one on athletics composed of Drs. J. B. Blake, M. F. Cronin, C. S. Catlin and R. M. Pearce.

It was the universal opinion of the men present that the outing should be held annually.

THE FORAMEN OF WINSLOW.

DESIROUS of aiding as far as possible all medical students who are now about undergoing the severe trials of memory known as first- and second-year examinations in anatomy, we publish the following poetic and at the same time accurate description of an important and difficult anatomical region, one in fact which may be described as the central point about which abdominal anatomy is grouped, or as the key to the situation. With regard to this fact, the following dictum has been attributed to Hippocrates: "The way to *learn* anatomy is to begin at the foramen of Winslow (*Ombilicus*) and work outward."

Combining, as they do, accurate anatomical description with the true lyric touch, these verses, which have lately been discovered unsigned among some old papers, have by some been attributed to our own poet and anatomist, Oliver Wendell Holmes, although this theory of their authorship has not been fully confirmed.

THE FORAMEN'S LAMENT.

I'm a poor abused foramen,
After Winslow I am named,
As a sticker and a poser
I am most unjustly famed.
For the students all neglecting,
Often fail in their detecting,
While my owner they're dissecting,
Then most roundly am I blamed.

I'm a poor abused foramen;
And in front of me is tucked,
The communis choledochus, which
Is nothing but a duct.
Farther front the duodenum —
Hepatic artery between 'em —
And the portal vein, you've seen 'em —
But if not, your surely plucked.

I'm a poor abused foramen;
And I'm bounded on the back
By the lower vena cava,
For I'm just before its track.
The right crus of the diaphragm
Then helps show you where I am
As I guide you from the greater,
Over to the lesser sac.

I'm but a poor foramen,
And the lobe Spigelii
Is kind enough to locate so's
To form the top of me;
The vessel that I've named before
Is kind enough to form the floor,
Just he alone and nothing more
Hepatic artery is he.

Now gentle reader listen,
Have I not good cause for sadness?
My descriptions never tally, and
They drive me most to madness
As I read the verbal photographs
That pass from book to book,
And make me out the darndest thing
That ever looked a look.
I know I don't deserve it,
I'm a simple little hole,
And the thought of these descriptions
Harrows up my very soul.

Obituary.

JOHN BLAIR GIBBS, M.D.

DR. JOHN BLAIR GIBBS, who was killed while in active service at Guantanamo on June 11th, and was the first medical officer to lose his life in the present war, was a well-known and highly esteemed member of the profession in New York. He had attained an enviable position as a surgeon and pathologist, and gave up a large and lucrative practice to enter the service of his country. He came of good old Revolutionary stock, and his father, Major Gibbs, of the Seventh United States Cavalry, who had served with gallantry through the Mexican and Civil wars, was killed with Custer at the battle of the Little Big Horn. At the time of his death he was a major-general by brevet.

Dr. Gibbs was born in Richmond, Va., thirty-nine years ago, and was graduated from Rutgers College, New Brunswick, N. J., in 1878. He pursued his medical studies first at the University of Virginia, and afterwards at the College of Physicians and Surgeons, New York, from which he was graduated in 1882. In 1884, after having served for eighteen months as interne at Bellevue Hospital, he went abroad and studied for nearly two years in London and Vienna. On his return to New York he became associated with Dr. Charles Kelley, with whom he remained until 1894, when he formed a partnership with Dr. Parker Syme. When war with Spain was declared he immediately applied for a position in the naval medical service, to which his fondness for yachting inclined him rather than to the army. He was appointed acting assistant surgeon, United States Navy, with the rank of ensign, on May 3d, and passed the requisite examination before the Board of Examiners at the Brooklyn Navy Yard with high honor.

At the time he volunteered Dr. Gibbs was assistant attending surgeon at Roosevelt Hospital, an instructor at the Post-Graduate Medical School, and first assistant surgeon to the Lebanon Hospital in the Borough of the Bronx. At a special meeting of the board of trustees of the latter institution, held June 19th, resolutions lamenting his untimely death were adopted.

Correspondence.

THE BOSTON FLOATING HOSPITAL.

BOSTON, June 20, 1898.

MR. EDITOR:—The work of the Boston Floating Hospital has been carried on during the past four summer seasons in July and August. The idea comes from New York, where a similar hospital has been in existence for many years, being carried on in connection with a seaside hospital by St. John's Guild. For three seasons, one trip per week at first, two later, were made. An excursion barge (the *Clifford*) was chartered for the day, and the sick children were cared for in hammocks and cots. Patients were admitted by means of cards signed by physicians and stating the diagnosis, thus guarding against contagious disease. The mother was, of course, admitted with the child and one well child, if under six years of age, was also taken, if the mother declared that she had no means of providing for its care otherwise. The barge left the wharf at 9 A. M., returning at 4 P. M. Facilities of all kinds were lacking. System or order was impossible. Scientific work was prospective only. In spite of all this, an apparent beneficial result was observed in a sufficiently large percentage of cases to constitute a reason for further prosecuting the work.

During the winter of 1896-97 an appeal for funds was made and responded to so generously that the Board of Managers, which had its origin at this time, was enabled to purchase the barge at an expense of \$3,500, and also to fit her up as a hospital at a further cost of \$2,500. During the season of 1897 a permanent consulting and visiting staff was organized and the position of house-officer (with a salary) was established. Two wards of twelve cribs each were laid out, the one for the sickest children being entirely shut in from the weather. The middle deck was surrounded with an adjustable awning. Four trips per week were made. During this season careful medical records were kept and much pains were taken to ascertain the results of treatment. For the details, the reader is referred to the annual report of the hospital.

The nursing has been for the two years past under the charge of an experienced graduate, and, during the last season, five paid assistants. The hospital has also been very much aided by the many graduate nurses who have done volunteer work.

During last season, as might be expected, patients were encountered who were too ill to be sent home, and these were kept aboard, some for several days. The boat was moored for the night at the end of the long wharf near the East Boston dry dock. It was found that the conditions here were so favorable to patients that the management has this year decided to institute a permanent hospital on the boat. It is believed that this will add very greatly to the value of the work. The boat will be moored at night at the East Boston pier mentioned and will make its trips as usual with the day patients on board in addition to those who are continuously in the hospital. The mothers will be allowed to remain on board with permanent patients; but inasmuch as they will have opportunity to go to and from their homes, they will be given only one meal daily on the hospital.

Trips of the hospital will be more frequent during the coming season than previously, namely, every week-day during July and August.

With reference to the financial outlay required, it is estimated that \$6,000 will approximately cover the expenses of this year.

The number of sick children that can be accommodated on a trip is 150 comfortably, and by some crowding 200.

It will thus be seen that a very large number of patients may, during the season, receive the hospital care. Last year 782 new cases were treated.

An important part of the hospital is its value as an educator. As a measure in the line of preventive medicine it is of essential value to train the mother in the art of caring for her child. It has been noticed that many mothers profit by the object-lesson that they receive while on the hospital, especially in the matters of cleanliness and regularity. The distribution of printed cards is carried out, and probably does some good. This year it is proposed to give demonstrations to a small number of women at a time, of the method of preparing sterilized food for their children. Printed directions (afterward given to the women) will be exactly followed, and it is hoped that some impression may be made.

SAMUEL BRECK, M.D.,
Visiting Physician to the Hospital.

RECORD OF MORTALITY

FOR THE WEEK ENDING SATURDAY, JUNE 11, 1898.

CITIES	Estimated population.	Reported deaths in each.	Deaths under five years.	Percentage of deaths from					
				Infectious diseases.	Acute lung diseases.	Diarrheal diseases.	Diphtheria and croup.	Measles.	
New York . . .	3,438,899	1068	362	9.36	11.34	2.34	1.89	1.80	
Chicago . . .	1,619,226	—	—	—	—	—	—	—	
Philadelphia . . .	1,214,256	—	—	—	—	—	—	—	
St. Louis . . .	570,000	—	—	—	—	—	—	—	
Baltimore . . .	550,000	181	53	12.80	8.25	3.85	3.30	.55	
Boston . . .	517,732	146	37	8.13	15.18	.60	2.07	.69	
Cincinnati . . .	405,000	93	—	4.32	16.20	1.06	1.08	—	
Cleveland . . .	350,000	—	—	—	—	—	—	—	
Pittsburg . . .	285,000	—	—	—	—	—	—	—	
Washington . . .	277,000	80	26	19.55	18.30	8.75	1.25	—	
Milwaukee . . .	275,000	—	—	—	—	—	—	—	
Providence . . .	150,000	49	15	10.20	10.20	2.04	2.04	—	
Worcester . . .	106,050	31	13	9.49	8.23	3.23	—	—	
Fall River . . .	96,919	32	11	9.39	19.78	6.28	—	—	
Nashville . . .	87,754	29	10	34.48	3.45	—	27.60	—	
Lowell . . .	87,193	26	11	3.45	19.25	3.85	—	—	
Cambridge . . .	86,812	14	3	—	35.70	—	—	—	
Lynn . . .	65,220	20	6	—	—	—	—	—	
Charleston . . .	65,165	—	—	—	—	—	—	—	
New Bedford . . .	62,416	16	5	12.50	—	6.25	6.25	—	
Somerville . . .	57,977	13	2	—	12.58	—	—	—	
Lawrence . . .	55,510	14	7	—	7.14	—	—	—	
Springfield . . .	54,790	11	4	—	27.27	—	—	—	
Holyoke . . .	42,364	13	9	20.37	6.79	13.58	6.79	—	
Salem . . .	38,062	4	0	—	25.00	—	—	—	
Brookton . . .	35,853	—	—	—	—	—	—	—	
Malden . . .	32,894	7	2	28.56	14.28	14.28	14.28	—	
Chelsea . . .	32,716	11	0	9.09	18.18	—	9.09	—	
Haverhill . . .	31,406	13	1	6.79	6.79	—	—	—	
Gloucester . . .	29,775	—	—	—	—	—	—	—	
Newton . . .	28,990	—	—	—	—	—	—	—	
Fitchburg . . .	28,392	11	3	—	9.09	—	—	—	
Taunton . . .	27,812	9	3	—	—	—	—	—	
Quincy . . .	22,562	2	1	—	—	—	—	—	
Pittsfield . . .	21,691	—	—	—	—	—	—	—	
Waltham . . .	21,612	2	0	—	50.00	—	—	—	
Everett . . .	21,575	—	—	—	—	—	—	—	
North Adams . . .	19,136	3	1	—	—	—	—	—	
Northampton . . .	17,418	—	—	—	—	—	—	—	
Chicopee . . .	17,368	2	1	—	—	—	—	—	
Brookline . . .	16,164	—	—	—	—	—	—	—	
Medford . . .	15,832	3	2	33.33	—	—	33.33	—	

Deaths reported 1,922: under five years of age 593; principal infectious diseases (small-pox, measles, diphtheria and croup, cerebro-spinal meningitis, diarrheal diseases, whooping-cough, erysipelas and fevers) 213, consumption 242, acute lung diseases 219, diarrheal diseases 53, diphtheria and croup 45, measles 22, whooping-cough 22, cerebro-spinal meningitis 20, scarlet fever 18, typhoid fever 18, erysipelas 5.

From whooping-cough New York 16, Boston 2, Baltimore, Providence, Nashville and Lynn 1 each. From cerebro-spinal meningitis New York 7, Baltimore 3, Washington, Providence and Worcester 2 each, Nashville, Lynn and Holyoke 1 each. From scarlet fever New York 16, Baltimore and Fall River 1

each. From typhoid fever New York 5, Boston and Washington 4 each, Baltimore 3, Cincinnati 2. From erysipelas New York 3, Baltimore and Washington 2 each.

In the thirty-three greater towns of England and Wales, with an estimated population of 11,218,378, for the week ending June 4th, the death-rate was 16.8. Deaths reported 3,611; acute diseases of the respiratory organs (London) 226, measles 136, whooping-cough 110, diphtheria 54, diarrhea 44, scarlet fever 32, fever 13.

The death-rates ranged from 9.9 in Derby to 24.6 in Sunderland; Birmingham 18.3, Bradford 14.7, Cardiff 15.5, Gateshead 23.1, Huddersfield 14.3, Hull 13.4, Leeds 19.5, Leicester 12.2, Liverpool 22.7, London 16.1, Manchester 20.3, Newcastle-on-Tyne 24.3, Nottingham 16.6, Portsmouth 15.9, Swansea 14.3, West Ham 11.5.

METEOROLOGICAL RECORD

For the week ending June 11th, in Boston, according to observations furnished by Sergeant J. W. Smith, of the United States Signal Corps:—

Date.	Baro- meter	Ther- mometer.		Relative humidity.		Direction of wind.		Velocity of wind.		We'th'r. *		Rainfall in inches.	
	Daily mean.	Daily mean.	Maximum.	Minimum.	8.00 A. M.	8.00 P. M.	Daily mean.	8.00 A. M.	8.00 P. M.	8.00 A. M.	8.00 P. M.		
S.....5	30.22	52	55	50	92	97	94	N.E.	E.	12	9	O.	.02
M.....6	30.18	55	59	51	82	93	88	E.	E.	6	4	F.	
T.....7	30.15	69	80	58	84	91	88	W.	E.	5	5	C.	.01
W.....8	29.96	70	84	56	83	81	82	S.E.	S.W.	4	16	C.	
T.....9	29.82	76	87	66	77	59	68	W.	N.W.	6	10	F.	.01
F.....10	30.12	65	72	58	67	62	64	N.E.	S.W.	14	10	F.	
S.....11	30.06	66	74	58	68	80	70	S.W.	S.W.	9	12	O.	F.

* O., cloudy; C., clear; F., fair; G., fog; H., hazy; S., smoky; R., rain; T., threat-
ening; N., snow. † Indicates trace of rainfall. — Means for week.

OFFICIAL LIST OF CHANGES IN THE STATIONS AND DUTIES OF OFFICERS SERVING IN THE MEDICAL DEPARTMENT, U. S. ARMY, FROM JUNE 11, 1898, TO JUNE 17, 1898.

CAPTAIN HENRY S. T. HARRIS, assistant surgeon, now on duty with Cavalry Division, Tampa, Fla., will report for duty to MAJOR-GENERAL FITZHUGH LEE, U. S. V., commanding 7th Army Corps, Jacksonville, Fla.

CAPTAIN HENRY B. SHAW, assistant surgeon, now on duty at the General Hospital, Key West, Fla., is ordered to duty at Key West Barracks, Fla.

CAPTAIN PAUL CLENDENIN, assistant surgeon, now at Key West Barracks, ordered to Jacksonville, Fla., for duty with 7th Army Corps.

CAPTAIN ADRIAN S. POLHEMUS, assistant surgeon, will proceed from Fort Wingate, N. M., to Chickamauga National Park, Ga., and report for duty with 3d Army Corps.

CAPTAIN CHARLES B. EWING, assistant surgeon, now on duty with Cavalry Division, Tampa, Fla., will report to MAJOR-GENERAL JAMES F. WADSWORTH, U. S. V., commanding 3d Army Corps, Chickamauga National Park, for duty at Camp George H. Thomas, Ga.

Acting Assistant Surgeon GEORGE B. LEE, U. S. A., will proceed to Jacksonville, Fla., and report to MAJOR-GENERAL FITZHUGH LEE, U. S. V., commanding 7th Army Corps, for duty.

Acting Assistant Surgeon MEDWIN LEALE, U. S. A., is assigned to duty with squadron of New York Cavalry Volunteers at Camp Alger, Va.

CAPTAIN JOHN L. PHILLIPS, assistant surgeon, having reported to the Surgeon-General of the Army, is ordered to Camp Alger, Falls Church, Va., for duty with 2d Army Corps.

The order assigning CAPTAIN OGDEN RAFFERTY, assistant surgeon, to duty in General Hospital, Key West, Fla., is revoked, and he will proceed to Falls Church, Va., and report to MAJOR-GENERAL WILLIAM M. GRAHAM, U. S. V., for duty.

FIRST-LIEUT. CARL R. DARNALL, assistant surgeon, will proceed to Tampa, Fla., and report to MAJOR-GENERAL WILLIAM R. SHAFER, U. S. V., commanding 5th Army Corps, for duty.

Acting Assistant Surgeon S. M. GONZALEZ, U. S. A., will proceed to Tampa, Fla., and report for duty with Cavalry Division.

BOOKS AND PAMPHLETS RECEIVED.

Diet for Consumptives. By Reynold W. Wilcox, M.D., New York. Reprint. 1898.

The Surgery of the Gall-Bladder and its Ducts. By H. O. Walker, M.D. Reprint. 1898.

A New and Successful Treatment of Certain Forms of Head-ache. By E. Larue Vansant, M.D., Philadelphia. Reprint. 1898.

A Case of Partial Dislocation of the Occipito-Atlanto-Occipital Articulation. By J. N. Hall, M.D., and H. L. Taylor, M.D., Denver, Col.

Proceedings of the New York Pathological Society for the Year 1896. Organized in 1844, incorporated in 1886. Printed for the Society. 1897.

Transactions of the American Pediatric Society, Ninth Session, held in Washington, D. C., May 4, 5 and 6, 1897. Edited by Floyd M. Crandall, M.D. Volume IX.

The Methodist-Episcopal Hospital Reports. Volume I, 1887, 1897. Edited by Lewis Stephen Pilcher, M.D., Glentworth Reeve Butler, M.D. New York: Published by the Hospital. 1898.

Aortic Stenosis with Mitral Regurgitation; a Clinical Lecture. Detection of Fetal Heart Murmur in Gravidæ, with Report of a Case. Displacement of the Heart in Lung Disease. By J. N. Hall, M.D., Denver, Col. Reprints. 1898.

Outlines of Practical Hygiene. By C. Gilman Currier, M.D., Associate of the American Society of Civil Engineers; Fellow of the New York Academy of Medicine; Member of the New York Pathological Society, etc. Third edition, revised and enlarged. New York: E. B. Treat & Co. 1898.

Atlas and Essentials of Pathological Anatomy. By Dr. O. Bollinger, Obermedicinalrat and Professor. Volume II. Urinary Apparatus, Sexual Organs, Nervous System and Bones. With 63 colored figures upon 52 plates and 17 illustrations in the text. New York: William Wood & Co. 1898.

Diseases of the Stomach, a Text-Book for Practitioners and Students. By Max Einhorn, M.D., Adjunct Professor in Clinical Medicine at the New York Post-Graduate Medical School and Hospital; Visiting Physician to the German Dispensary. Second revised edition. New York: William Wood & Co. 1898.

A Manual of Hygiene and Sanitation. By Seneca Egbert, A.M., M.D., Professor of Hygiene and Dean of the Medico-Chirurgical College of Philadelphia; Professor of Anatomy, Physiology and Hygiene in Temple College; Member of the Academy of Natural Sciences of Philadelphia, etc. Illustrated with 63 engravings. Philadelphia: Lea Brothers & Co. 1898.

Modern Gynecology, a Treatise on Diseases of Women, comprising the Results of the latest Investigations and Treatment in this Branch of Medical Science. By Charles H. Bughong, M.D., Assistant Gynecologist to the Demilt Dispensary, New York; formerly Attending Physician to the Northern Dispensary, New York. Illustrated. Second edition. Enlarged. New York: E. B. Treat & Co. 1898.

Atlas and Abstract of the Diseases of the Larynx. By Dr. L. Grünwald, of Munich. Authorized translation from the German. Edited by Charles P. Grayson, M.D., Lecturer on Laryngology and Rhinology in the University of Pennsylvania; Physician in charge of the Nose and Throat Department, Hospital of the University of Pennsylvania. With 107 colored figures on 44 plates. Philadelphia: W. B. Saunders. 1898.

Brief Essays on Orthopedic Surgery, Including a Consideration of its Relation to General Surgery, its Future Demands, and its Operative as well as its Mechanical Aspects, with Remarks on Specialism. By Newton M. Shaffer, M.D., Surgeon in Chief to the New York Orthopedic Dispensary and Hospital; Clinical Professor of Orthopedic Surgery, University of New York City (Medical Department); Consulting Orthopedic Surgeon to St. Luke's and the Presbyterian Hospitals, New York, etc. New York: D. Appleton & Co. 1898.

Zur Aufklärung der Rolle, welche stechende Insekten bei der Verbreitung von Infektionskrankheiten spielen. Infektionsversuche an Mäusen mittels mit Milzbrand, Hühnercholera und Mäuseepitkämie infizierter Wanzen und Flöhe. [Aus dem hygienischen Institut Berlin.] Von George H. F. Nuttall, Dr. med. et phil. ehem. Dozenten der Hygiene an der Johns Hopkins Universität, Baltimore, dermal. Assistent am hygienischen Institut in Berlin. Abdruck aus dem Centralblatt f. Bakteriologie, Parasitenkunde u. Infektionskrankheiten, Erste Abt., xxiii Bd., No. 15, 1898.

Atlas of Legal Medicine. By Dr. E. Von Hofmann, Professor of Legal Medicine and Director of the Medico-Legal Institute of Vienna. Authorized translation from the German. Edited by Frederick Peterson, M.D., Clinical Professor of Mental Diseases in the Woman's Medical College, New York; Chief of Clinic, Nervous Department, College of Physicians and Surgeons, New York. Assisted by Aloysius O. J. Kelly, M.D., Instructor in Physical Diagnosis, University of Pennsylvania; Adjunct Professor of Pathology, Philadelphia Polyclinic, etc. Fifty-six plates in colors, and 193 illustrations in black. Philadelphia: W. B. Saunders. 1898.

Original Articles.

THE AMERICAN PEDIATRIC SOCIETY'S COLLECTIVE INVESTIGATION ON INFANTILE SCURVY IN NORTH AMERICA.¹J. P. CROZER GRIFFITH, M.D., CHARLES G. JENNINGS, M.D.,
JOHN LOVETT MORSE, M.D., COMMITTEE.

THE subject of infantile scurvy has so recently come into prominence, and still presents so many mooted questions, especially regarding its etiology, that it was the decision of the American Pediatric Society a year ago to undertake a collective investigation of the matter, based upon the cases occurring in America. This seemed particularly needed, as no other such study upon a large number of cases has yet been made in any country.

The committee, which is now making its report, was accordingly appointed. It has been diligently at work during nearly a year, and has used every means in its power to reach reports of cases of the disease. A list as accurate as possible was prepared of all the medical journals of North America, and a notice of the proposed investigation was sent to each, inviting correspondence on the part of all readers. Letters were sent to the secretaries of the country societies in a large number of the States of the Union, requesting that notice be given at the meetings. Letters were also addressed to the professors of diseases of children in all the regular medical colleges of the United States. The "Index Medicus" was searched for the names of those who had published reports of cases, and letters were addressed to all of them, as indeed to all physicians of whom even the rumor had come of probable cases under their charge. Circulars were printed containing questions to be answered, and were sent to all the members of the American Pediatric Society, to all physicians applying for them, and finally wherever there seemed any chance of getting a response.

The questions contained in the circular requested information on the following points: Whether the case was seen in hospital or private practice; the race, sex, and age; the hygienic surroundings, family history, and previous illnesses; full details of feeding from birth, and the influence which the food appeared to have had upon the development of the disease; the symptoms in detail, with special reference to pain and its location, apparent paralysis or inability to move, swellings, fractures, hemorrhages, the condition of the gums, the presence of fever, the condition of the urine and bowels, the presence of anemia or malnutrition and of rickets or any other complicating diseases, and the character of the first symptom to develop; the treatment in detail, with duration of illness, and the time before decided improvement was discovered; the direct cause of death in fatal cases, and the *post-mortem* findings; and finally, whether the case had been published previously.

The committee has been surprised and pleased at the large number of replies received. There are other cases of which it has knowledge of which no reports could be obtained, and undoubtedly many more whose existence was not discovered. But in all the committee has collected 379 cases seen by 138 observers. Some of the cases are very incompletely reported, but in the majority of instances the answers

are for the most part satisfactory. No cases needed to be excluded as instances of mistaken diagnosis, although a very few were somewhat doubtful.

The topics covered by the questions can best be taken up for the most part seriatim, stating merely what the reports state, without vouching for the correctness of opinions.

RACE.—The race to which the subjects of the disease belong is stated in 372 cases. It is not given with definiteness sufficiently often to allow of an analysis further than to say that there were 367 white, 4 black, and 1 Chinese.

SEX.—Sex shows out of 372 cases, 189 male, that is, 51 per cent.; and 183 female, that is, 49 per cent.; a difference not decided enough to indicate that sex is an etiological factor. In the remaining cases the sex is not mentioned.

AGE.—Age is a very important matter. Although strictly speaking, the age of the cases of infantile scurvy should be limited to those under two years, the committee has ventured to include a few in children slightly or decidedly older than this; since the etiology and symptoms are not different in any respect. Question IV on the circular reads, "Age when Seen with Scurvy," while XIV reads, "Duration of Illness before Treatment was Commenced." By combining the answers to these two questions, the age at which the illness developed could be determined in most instances. Reliable information was given in 359 cases; in the remaining number the age was unknown or was not stated. The accompanying tabular arrangement shows the number of cases developing at different ages:

AGE WHEN SCURVY DEVELOPED.

Age.	Cases.	Per ct.	Age.	Cases.	Per ct.
3 wks.	1	.27	16 mos.	7	1.70
1½ mos.	1	.27	17 "	6	1.67
2 "	3	.83	18 "	7	1.70
3 "	2	.55	19 "	4	1.11
4 "	9	2.50	20 "	2	.55
5 "	5	1.40	22 "	1	.27
6 "	13	3.63	23 "	1	.27
7 "	33	9.19	2 yrs.	2	.55
8 "	41	11.42	2 yrs., 3 mos.	1	.27
9 "	47	13.09	2 " 6 "	1	.27
10 "	51	14.20	2 " 7 "	1	.27
11 "	26	7.94	2 " 8 "	1	.27
12 "	25	7.00	3 " 6 "	1	.27
13 "	25	7.00	4 " 2 "	1	.27
14 "	22	6.13	6 "	1	.27
15 "	17	4.73	9 "	1	.27

It will be seen that the disease is most apt to develop between the ages of seven and fourteen months, inclusive. The youngest case was that reported by Dr. A. Matheson of Neillsville, Wis. This was a child of four weeks who had already been ill five days when first seen. The child was fed at the breast. Its hygienic surroundings were poor. The disease exhibited perfectly typical symptoms and ended fatally.

The oldest child, reported by Dr. J. H. Fruitnight, was one of nine years, and was also a typical case, rapidly recovering under dietetic treatment. The cause appeared to be improper diet.

SOCIAL POSITION.—Of 379 cases it is interesting to note that 83 per cent. occurred in private practice, and only 17 per cent. in hospital practice. Although no absolute class distinctions can be based on these figures, yet they point very positively to the greater tendency of the disease to occur among the rich or the well-to-do. This tendency is still further illustrated by the statements of the writers regarding the *hygienic surroundings* of the cases. In 303 cases these are described as good, and often the statement is volun-

¹ Reported at the Tenth Annual Meeting, Cincinnati, June 2, 1898.

teered that they were of the very best. In five they were doubtful, and in only 40 are they described as bad. The figures of the report would therefore seem to indicate that the influence of bad hygienic conditions upon the etiology of the disease is extremely limited.

PREVIOUS HEALTH.—Out of 285 cases suitable for study, it is distinctly stated in 167 that the previous health had been good. In 118 the child had suffered from various diseased conditions, which may be enumerated as follows:

Bronchitis, 5; chicken-pox, 1; constipation, 1; convulsions, 3; cretinism, 1; diarrheal conditions, 45; eczema, 1; furunculosis, 1; indigestion, 22; influenza, 6; malaria, 1; measles, 7; pneumonia, 5; rheumatism, 1; scurvy (previous attack), 1; scrofulous diathesis, 1; typhoid fever, 1; whooping cough, 2.

It is evident that the occurrence of most of these diseases can only be considered as accidental. There is a striking preponderance of instances of digestive disturbance. This probably is an indication that the faulty diet which occasioned the scurvy produced the indigestion also. It is no proof that the digestive disease itself bore any etiological relation to the constitutional affection. This is clearly the view of the correspondents, for, in answer to the question of the circular, a belief in any other cause than diet is expressed in only 24 instances.

Rickets, anemia, and malnutrition are not mentioned in the foregoing list. They will be referred to later.

Attention may be called to the instance of a second attack of scurvy reported by Dr. L. E. Holt. The child was eighteen months of age at the time of the second attack, the previous one having developed four months before. The first attack followed the use of Mellin's food and sterilized milk. Recovery followed in a week upon a diet of sterilized milk and beef juice, no fruit juice being given. The second attack followed the use of Reed & Carnrick's soluble food. The patient in this attack was in a wretched condition and died in eight days.

The case of scurvy developing in a cretin, reported by Dr. A. Caillé, is also interesting. The child was a typical cretin of fourteen months. Scurvy followed the use of condensed milk. Recovery was very prompt under the administration of sterilized milk, fruit juice and cereals.

FAMILY HISTORY.—This, too, appears to exert little or no influence. In 129 cases the family history is stated to have been good, and in 97 it is negative. In 74 the following diseases are mentioned in the family:

Alcoholism, 2; anemia, 2; asthma, 1; carcinoma, 1; caries of spine, 1; diarrhea, 1; eczema, 1; gout, 2; neurotic tendency, 6; paresis, 1; pneumonia, 1; rheumatism, 16; sciatica, 1; scurvy, 1; syphilis, 7; tuberculosis, 29; uricacidemia, 1.

DIET.—The most important etiological factor, according to general opinion, is a dietetic one. Consequently, the committee has paid particular attention to this point. When correspondents did not make the matter quite clear in their answers, personal letters were addressed to them, asking for further information. A large number of such letters have been written, and replies received in most instances. Full details were asked regarding diet from birth onward, and the question of food used at the time the scurvy developed, or so shortly before that it might seem to

be associated with it, was particularly emphasized. The question was also asked, whether in the opinion of each correspondent there was reason to believe that the disease depended on the nature of the food used. An affirmative answer was received in 275 cases; negative, and the disease attributed to other causes, in 24. The committee is not in a position to judge of the correctness of this view, nor can it claim that the disease *did* arise in any instance as the result of the diet employed. It would make merely the following statements of the food employed at or shortly before the symptoms of scurvy were observed according to the reporters' replies.

Any accurate percentage analysis of the report is impossible, both because the correspondents have not always stated the exact nature of the food, and because in very many instances more than one form of food was given. Perhaps the following summary of some of the main divisions may be of value, remembering, however, that cases are repeatedly counted twice; for example, one case may be counted in the condensed milk class and again in the sterilized milk division.

FOOD USED AT OR SHORTLY BEFORE SCURVY DEVELOPED.

Number of cases in which the character of the food is specified, 356.

Food given as follows:

Breast Milk.—Alone, 10; with raw milk and amylaceæ, 1; with sterilized milk and amylaceæ, 1; total, 12.

Raw Milk.—Alone, 4; with breast milk and amylaceæ, 1; total, 5.

Milk (nothing said about heating).—Alone, 8; peptonized, 4; with amylaceæ, 4; total, 16.

Sterilized Milk.—Alone, 68; with proprietary foods, 21; with amylaceæ, 8; peptonized, 10; total, 107.

Pasteurized Milk.—Alone, 16; with proprietary foods, 2; with amylaceæ, 1; peptonized, 1; total, 20.

Peptonized Milk.—Nothing further stated, 3; sterilized, 8; Pasteurized, 1; with proprietary foods, 1; with amylaceæ, 1; total, 14.

Amylaceous Food (not proprietary).—Alone, 6; with breast milk, 3; with milk, 5; with sterilized milk, 8; with Pasteurized milk, 1; with peptonized milk, 1; total, 24 (9 of these were oatmeal).

Table Food.—Nothing else mentioned, 11; with condensed milk, 1; total, 12.

Mellin's Food.—Nothing further stated, 42; with condensed milk, 22; with sterilized milk, 16; with Pasteurized milk, 2; with other proprietary food, 1; total, 83.

Malted Milk.—Nothing further stated, 44; with cream, 1; with amylaceæ, 1; with other proprietary foods, 2; total, 48.

Condensed Milk.—Alone, 32; with milk, 1; with cream, 1; with other proprietary foods, 3; with table food, 1; total, 38.

Reed & Carnrick's Soluble Food.—13.

Imperial Granum.—6.

Liebig's Food.—Alone, 1; with condensed milk, 1; total, 2.

Lactated Food.—Alone, 3; with condensed milk, 1; total, 4.

Nestlé's Food.—Alone, 1; with sterilized peptonized milk, 1; total, 2.

Among other articles of diet mentioned by correspondents, each in one instance, are: Gardner's food, Robinson's barley, Ridge's food, Brush's food, animal broths, Bartlett's pepsinated food, Lactopræparata with malted milk.

There are a number of instances in which the writers mention "proprietary foods" without further design-

nation. In all 214 cases (60 per cent.) were fed on proprietary foods.

The effect of dietetic treatment has such an important bearing upon the etiological influence of diet that the whole matter will be discussed more fully under Treatment.

SYMPTOMS.—The symptoms in infantile scurvy are so typical and well known that they would appear to need little further study. Nevertheless, the attention which has been directed to them by the questions of the circular has not been without fruit.

FIRST SYMPTOM TO DEVELOP, AND ORDER AND TIME OF OTHER SYMPTOMS.—In response to this question the answers have not been altogether satisfactory. Undoubtedly in a large number such early symptoms as anemia and malnutrition were overlooked or were not included by the readers as symptoms of the disease. Then in a large number, perhaps the majority, of cases, answers have not made it quite clear whether the correspondent intended that a certain number of symptoms developed in the order in which the names are written, or whether they all were noticed at one time. Presuming that the first is the writer's intention, we make the following statement of the first symptom seen, basing this on 327 cases. The order of symptoms is too complicated and too uncertain to warrant a statistical arrangement.

FIRST SYMPTOMS SEEN.—Pain and tenderness, 145; affection of gums, 42; interference with motion, 36; anemia, 27; cutaneous hemorrhages, 22; swellings, 16; restlessness, 6; anorexia, 5; debility, 5; diarrhea, 5; constipation, 2; hemorrhage from nose, 1; hemorrhage from mouth, 1; hemorrhage from rectum, 1; hematuria, 3; "hematoma of tongue," 1; irritability, 3; vomiting, 1; fever, 1; opisthotonos, 1; sweating, 1.

PAIN ON MOTION OR HANDLING.—Pain is clearly a very prominent symptom of the disease. Generally it is evident only when the child is moved, or tries to move itself. Sometimes it is so intense that the approach of any one to the bedside is sufficient to cause the child to scream out through fear of being touched. Pain is reported present in 314 instances. In most of the remaining, no answer was made, and it is probable that the symptom could not have been a prominent one. The locality of the pain in the cases where there were accurate details was as follows:

Legs, 120; legs and arms, 25; legs and one arm, 11; legs and body, 4; one leg, 13; one leg and one arm, 1; one arm, 1; back, 1; back and legs, 1; back and leg, 1; back and thighs, 1; thighs, 1; hips and thigh, 1; one thigh, 2; one hip, 2; knees, 1; knees and ankles, 2; knees, ankles and shoulders, 1; knees, ankles and wrists, 2; knees and arms, 1; one knee, 1; one ankle, 1; ankles, 1; ankles and feet, 1; ankles and elbows, 1; elbow, 1.

PAIN WHEN AT REST.—In 91 cases pain seems to have been present, even when the child was still; while in 134 it is definitely stated as absent under this condition.

INTERFERENCE WITH MOTION.—The symptom variously described as *paralysis*, *pseudo-paralysis* and *disability* or *unwillingness to move* is reported frequently. It probably depends in every instance upon pain, since there is no evidence that actual paralysis occurs in the disease. In 319 cases interference with motion of this nature existed.

Rigidity is described as present in 96 cases and absent in 106. It is due to pain in most instances, but

perhaps in others may have been occasioned or increased by the presence of swelling.

The parts of the body in which motion has been interfered with in any way in the cases reported, and the locality mentioned in detail, may be enumerated as follows:

Legs, 159; legs and arms, 55; legs and one arm, 14; legs and one hand, 2; one arm, 3; legs and thighs, 1; thighs, 3; one leg and one arm, 1; one leg, 27; one thigh, 2; hips, 1; one hip, 2; one hip and thigh, 1; one hip and knee, 3; hip, leg and shoulder, 1; hip, elbow and shoulder, 1; one knee, 4; one ankle, 2; ankles, knees, hand and wrist, 1.

POSITION OF THE LIMBS.—To a question regarding the position of the limbs, about which Barlowe speaks so definitely, there have been replies in 205 cases. In 17 of these the position was normal. In the balance we find the position of the limbs as follows:

Flexed, 152; extended, 23; flexed and abducted, 1; flexed and adducted, 1; flexed and everted, 1; abducted, 1; everted, 3; everted and extended, 2; toes extended, 1; feet extended, 3.

WEAKNESS OF THE BACK.—The occurrence of weakness of the back, a symptom which Barlowe says is marked, is mentioned as present in 97 of the cases reported to the committee and as absent in 108. In the remaining nothing is said of it.

DEPRESSION OF THE STERNUM.—This condition is likewise emphasized by Barlowe as being sometimes striking and characteristic. It is mentioned in 34 cases, but said to be absent in 170 others. It is not certain in the cases of the report how frequently the condition had developed acutely as a result of scurvy and how often it had already been produced by a previously existing rachitis.

SWELLINGS.—The effort has been made by analyzing the cases collected to determine the position of local swellings, whether these were situated in the joints or the shafts of the limbs, in the soft tissues or in the bones, and whether any redness was present. The answers are not clear in every instance, and are frequently somewhat contradictory, partly, perhaps, from failure of the observer to understand the question, and partly from lack of careful discrimination between subperiosteal and other effusions, and between effusion into a joint and that about it. The great irregularity also of the distribution of the swelling renders an accurate tabular arrangement too complicated. Remembering that in many cases more than one part of the body was involved and that the figures given do not mean that only the portion mentioned is affected in these cases, the following division may be made:

Joints (or probably oftener about joints) involved in 165 cases. Location given in 101, namely: knees, 73; ankles, 28; wrists, 12; hand, 1; elbow, 3; shoulder, 5; hip, 6.

Shafts of limbs involved in 179 cases. Location given in 123, namely: thighs, 59; legs (below knee), 61; "legs" (not further stated), 11; forearm, 5; upper arm, 4; "arm," 5; ribs, 1; scapula, 1; ilium, 1.

The gross results of the answers regarding the tissues in which the swelling occurred give: swelling in soft tissues, 97; swelling, subperiosteal, 114; swelling in both situations, 16.

In 69 cases the swollen parts were reddened also. It is stated that there was no redness in 121. A more general swelling, to be classified rather as edema, is described in 68 cases and stated to be absent in 98.

In regard to the swelling or protrusion of one or both eyes which has been described by writers, the symptom is said to have been absent in 110 cases and is reported present in 49. In nine of these swelling only is mentioned, in 18 protrusion only, and in 22 both are referred to.

Gums.—The condition of the gums and mouth is one of extreme interest. In 16 cases it is distinctly stated that the gums were entirely unaffected, while in 313 they were diseased. The degree of involvement varies from slight swelling to great sponginess and even ulceration. The degree and form of the affection in the cases suitable for study may be seen in the following table:

Swelling: absent, 14; present, 293.
Sponginess: absent, 27; present, 249.
Discoloration: absent, 23; present, 259.
Bleeding: absent, 64; present, 188.
Ulceration: absent, 101; present, 91.

The relation of the affection of the gums to the presence of teeth is of much interest. In nearly all the cases of scurvy in this report teeth were present, but what influence this has is not quite clear, since experience teaches that curiously it is usually the gums of the upper jaw which are most affected, although the lower teeth naturally are the first cut. Statistics on the portion of the gums involved were not furnished sufficiently to allow of conclusions; but regarding the teeth it is to be noted that of 359 cases suitable for comparison, teeth had already appeared in 314 instances, that is, 87.5 per cent.; while in only 45 cases, that is, 12.5 per cent., were there no teeth. In studying more carefully these 45 cases of scurvy without teeth, we may make the following analysis:

No teeth: gums normal, 21 cases.
No teeth: gums affected, 24 cases.

The conditions present in the latter group were as follows:

Swelling, 19 cases; sponginess, 14 cases; bleeding, 5 cases; discoloration, 17 cases; ulceration, 4 cases.

This is a proof that affection of the gums may occur equally well when there are no teeth as when teeth have developed. The fact that in the great majority of cases of infantile scurvy the presence of teeth and the affection of the gums is associated depends merely on the fact that the disease generally develops at an age when teeth naturally have been cut.

CUTANEOUS HEMORRHAGES.—These have occurred with frequency in the cases reported. Accurate data are given in 353 cases. Of these, cutaneous hemorrhage is reported present in 182 and absent in 171. There is much doubt about the accuracy of the writers in their classification of the hemorrhages according to size, and to the proper use by them of the descriptive names employed, inasmuch as the question on this point did not specify clearly. In 99 instances the presence of "ecchymoses" is mentioned. In 83 "purpuric eruption" is reported and in 37 "petechiæ." In 13 the nature of the lesion is not specified.

HEMORRHAGE FROM MUCOUS MEMBRANES.—Data are available in 361 cases. Of these there were no hemorrhages from any mucous membrane in 196, while in 164 they occurred. In 93 cases there was hemorrhage from the mouth. This includes the cases where bleeding from the gums is described by writers. In 33 cases there was bleeding from the nose; in 2

from the stomach, and in 37 from the bowels. Cases of hematuria are not included here, and will be referred to later.

FRACTURES.—Fractures in infantile scurvy are usually separations of the epiphyses merely. Even this would seem to be rare, for fracture of any kind is mentioned in only 9 of our cases. In 342 it is distinctly stated to have been absent, and in the remaining the question is not answered.

FEVER.—Probably in the majority of the cases of the disease upon which this report is based no temperature record has been made. In 93 cases it is stated that there was no fever; in 182 it was present and in the remaining no answer is given. In the cases where present it is described as slight in 116 instances, moderate in 23, high in 8, and irregular in 6. Clearly, fever is not a prominent symptom of the disease, and probably often, when present, depends on accidental causes.

BOWEL MOVEMENTS.—The following conditions are mentioned: bowels regular, 74; bowels irregular, 15; constipation, 126; diarrhea, 65; bloody diarrhea, 12.

URINE.—Judging from the number of instances in which no answers have been returned, no examination of the urine has been made in most of the cases. It is reported as examined for albumin in 163 cases; in 33 of these albuminuria is reported and in 130 it was absent. Tube casts were present in 13 instances, absent in 13, and no observation reported in the others.

Properly speaking the occurrence of hematuria should be discussed under the title of hemorrhage. It is mentioned as present in 22 cases only. Of other abnormal conditions of the urine the following may be mentioned: Urine very acid, 1; urine scanty, 9; urine suppressed, 1; urine increased in quantity, 3; glycosuria, 1; hemoglobinuria, 1; pus (from cystitis), 1; phosphates increased, 1; chlorides increased, 1.

ANEMIA, MALNUTRITION.—These conditions, already referred to as often the earliest symptoms of infantile scurvy, may have been the first evidences of the disease in many of the cases on which this report is based. In other cases they must be regarded as complicating affections only. Answers are not full enough to allow of satisfactory conclusions on this point.

Anemia is said to have been present in 254 cases, as follows: anemia present (without specifying degree), 47; slight, 66; moderate, 32; marked, 109.

Blood examinations were made in 15 cases, and the conditions noted as follows: The percentage of hemoglobin was much reduced in all the cases, 8 in number, in which an examination was made, some being as low as 35 per cent. Of the seven cases in which the red blood corpuscles were counted, all showed a reduction except 2. In these 2 the number was normal or nearly so, but the hemoglobin was 50 and 35 per cent., respectively. Leucocytosis was present in 5 cases. Poikilocytosis in 2. In only one instance was there a differential count of the leucocytes made.

Of 217 cases in which the question is answered, emaciation is recorded in 167 and is said to have been absent in 50.

Malnutrition was observed in 178 cases out of 216, in which replies were made as follows; malnutrition present (without specifying degree), 108; slight, 20; moderate, 7; marked, 43.

RICKETS.—Infantile scurvy has so often been described as "scurvy rickets" and "acute rickets," that the investigation of the actual relationship of the two

diseases was one of the matters to which the committee directed especial attention. The questions upon the circular read as follows: (a) "Any symptoms of rickets present?" (b) Slight or well marked? (c) What relation in time of development did they bear to the scurvy?" Satisfactory answers were received in 340 cases; in 152 of these (45 per cent.) there were symptoms of rickets present, slight in 72, marked in 64, and the degree not mentioned in 16. In the remaining cases (55 per cent.) rickets is definitely stated to have been absent. With regard to the relation in time of development, it is stated in 50 cases that the rickets was first present; in 14 that it developed with the scurvy, and in 2 after it. There does not seem to be evidence as far as this investigation teaches that the association of rickets and scurvy is at all intimate. Very possibly the same defect in diet which produced the one produced the other also, but the rapid recovery under treatment which the scurvy underwent did not apply to the rickets. This seems to indicate only accidental association of the two diseases; certainly not any causal relation between them.

OTHER COMPLICATING CONDITIONS.—A variety of affections are mentioned complicating scurvy in a number of cases as follows:

Bronchitis, 5; cretinism, 1; enlargement of inguinal glands, 1; "cerebral symptoms," 1; convulsions, 1; pneumonia, 2; boils, 1; irritability, 1; vomiting, 4; eczema, 2; enuresis, 1; sweating of the head, 1; tympanites, 1; caput medusæ, 1; diaphoresis, 1; pertussis, 2; insomnia, 1; anorexia, 2; post nasal discharge, 1; measles, 1; restlessness, 1; phimosis, 1; indigestion, 2; laryngismus stridulus, 1; cystitis, 1.

(To be continued.)

MAJOR AMPUTATIONS AT THE MASSACHUSETTS GENERAL HOSPITAL.

A STUDY OF THE MORTALITY FROM 1822 TO 1896.

BY CHARLES L. SCUDDER, M.D.,

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THE major amputations done at the Massachusetts General Hospital from 1822 to 1870 were compiled by Dr. James R. Chadwick in elaborate and carefully prepared tables, and were published in May, 1871.

It was found that during the first period, the pre-antiseptic period, 699 amputations of the limbs had been done. The mortality percentage for this period has been recorded in the table following:

MORTALITY PERCENTAGES FOR THE FIRST PERIOD, 1822-1870.

1. Amputation at the Shoulder-Joint.	
Traumatic, primary	53.33
Pathological	27.27
2. Amputation of the Arm.	
Traumatic, primary	19.44
Traumatic, secondary . . . . .	....
Pathological	12.50
3. Amputation of the Forearm.	
Traumatic, primary	24.13
Traumatic, secondary . . . . .	....
Pathological	14.81
4. Amputation of the Thigh.	
Traumatic, primary	42.37
Traumatic, secondary	60.00
Pathological	20.98
5. Amputation at the Knee-Joint.	
Traumatic, primary	60.00
Traumatic, secondary . . . . .	....
Pathological	36.36
6. Amputation of the Leg.	
Traumatic, primary	34.37
Traumatic, secondary	36.41
Pathological	12.60

At the Massachusetts General Hospital, between the years 1870 and 1890, the second period, for a space of twenty years 657 major amputations have been performed.

Through imperfections in the records two cases are not complete enough to include in this report.

The anatomical groups of cases are subdivided into those cases operated upon for disease and for traumatism, that is, pathological and traumatic groups, and this last group is further divided into primary and secondary classes, according as the amputation was done within or after the twenty-four hours immediately following the accident.

After a careful analysis of these groups of cases, I have determined the average mortality in each, and the causes of death in so far as the records would allow.

There was one amputation at the hip-joint during this period, with recovery. There has been one amputation at the elbow-joint, which died. There have been four amputations at the ankle-joint and four amputations at the wrist-joint, with no mortality. There have been 38 cases of partial amputation of the foot. There have been 77 amputations of fingers and toes.

These cases mentioned above are not included in the estimates of mortality of the major amputations given below.

AMPUTATIONS AT THE SHOULDER-JOINT.

Traumatic, Primary.—Recovered, 7 cases; died, 7; total, 14. Mortality, 50 per cent. Causes of death: from shock, 6 cases; internal hemorrhage, 1. The accidents necessitating these amputations were crushes, which in almost every instance caused extensive injury to the parts adjacent to the shoulder and arm; hence the great shock, which caused death.

Pathological.—Recovered, 3 cases; died, 0; total, 3.

AMPUTATIONS OF THE UPPER ARM.

Traumatic, Primary.—Recovered, 36 cases; died, 5; total, 41. Mortality, 12.19 per cent. Causes of death: from shock, 4 cases; hemorrhage, 1.

Pathological.—Recovered, 26 cases; died, 5; total, 31. Mortality, 16.12 per cent. Causes of death: from shock, 3 cases; record incomplete, 2.

AMPUTATIONS OF THE FOREARM.

Traumatic, Primary.—Recovered, 37 cases; died, 11; total, 48. Mortality, 22.99 per cent. Causes of death: from shock, 5 cases; secondary hemorrhage, 2; ether, 1 (the autopsy showed no lesion to account for death); sepsis, 2; fracture of base of the skull, 1.

Pathological.—Recovered, 22 cases; died, 3; total, 25. Mortality, 14 per cent. Causes of death: tetanus, 2 cases; uremia, 1.

AMPUTATIONS OF THE LEG.

Traumatic, Primary.—Recovered, 86 cases; died, 33; total, 119. Mortality, 27.73 per cent. Causes of death: from delirium tremens, 1 case; secondary hemorrhage, 1 case in 1877; fat embolus, 1; internal injuries, 1; carbolic acid poisoning, 1; shock, 17; sepsis, 11 (two of these cases became septic from gangrene of the part. Eighty-eight of these cases were railroad accidents, and of these 88 cases, 23 died).

Traumatic, Secondary.—Recovered, 22 cases; died, 6; total, 28. Mortality, 21.43 per cent. Causes of death: from sepsis 4 cases; shock, 2.

Pathological.—Recovered, 100 cases; died, 16; total, 116. Mortality, 13.78 per cent. Six of these deaths occurred previous to 1879, and were due to sepsis. Seven of these deaths occurred in elderly people, the amputation

being done in five cases for senile gangrene, in two cases for traumatic gangrene. One death was due to general tuberculosis; one death was due to exhaustion, four days after the operation; one death was due to pneumonia.

AMPUTATIONS AT THE KNEE-JOINT.

Pathological. — Recovered, 6 cases; died, 6; total, 12. Mortality, 50 per cent. Two deaths were from sepsis, prior to 1878. One death in 1879 was due to carbolic-acid poisoning. One death was due to tetanus, 1871. One death, the patient did not recover from ether, 1879. One death from secondary hemorrhage, 1872.

Traumatic, Primary. — Recovered, 4 cases; died, 6; total, 10. Mortality, 60 per cent. Causes of death: from sepsis, 2 cases; carbolic-acid poisoning, 1 case in 1879; tetanus, 1; ether, 1; secondary hemorrhage, 1.

Traumatic, Secondary. — Recovered, 10 cases; died, 12; total, 22. Mortality, 54.54 per cent.

AMPUTATIONS OF THE THIGH.

Traumatic, Primary. — Recovered, 32 cases; died, 29; total, 61. Mortality, 47.54 per cent. Forty-six of these cases were railroad accidents, of which 21 died and 25 recovered. Of the 29 deaths, 24 cases died of shock, 4 of sepsis, 1 of pneumonia.

Traumatic, Secondary. — Recovered, 5 cases; died, 2; total, 7. Mortality, 28.5 per cent. The injuries necessitating amputation of the thigh were so severe as to cause often multiple lesions. The combination of all these lesions caused great shock producing death in many cases.

Pathological. — Recovered, 56 cases; died, 17; total, 73. Mortality, 23.28 per cent. Eight deaths due to sepsis; 6 to shock; 2 to carbolic-acid poisoning; 1 to secondary hemorrhage.

MORTALITY PERCENTAGES FOR THE SECOND PERIOD, 1870-1890.

1. Amputation at the Shoulder-Joint.	
<i>Traumatic, primary.</i>	50.
<i>Pathological.</i>	0.
2. Amputation of the Arm.	
<i>Traumatic, primary.</i>	12.19
<i>Traumatic, secondary.</i>	....
<i>Pathological.</i>	16.12
3. Amputation of the Forearm.	
<i>Traumatic, primary.</i>	22.99
<i>Traumatic, secondary.</i>	....
<i>Pathological.</i>	14.00
4. Amputation of the Thigh.	
<i>Traumatic, primary.</i>	47.54
<i>Traumatic, secondary.</i>	28.05
<i>Pathological.</i>	23.28
5. Amputation at the Knee-Joint.	
<i>Traumatic, primary.</i>	60.00
<i>Traumatic, secondary.</i>	....
<i>Pathological.</i>	50.00
6. Amputation of the Leg.	
<i>Traumatic, primary.</i>	27.73
<i>Traumatic, secondary.</i>	21.43
<i>Pathological.</i>	13.78

During the years from January, 1885, to December, 1896, the third period, there have been performed 670 amputations.

AMPUTATIONS AT THE SHOULDER-JOINT.

Traumatic, Primary. — Recovered, 13 cases; died, 6; total, 19. Mortality, 31.57 per cent. These cases all died from shock a few hours after amputation.

Traumatic, Secondary. — One case which died of shock.

Pathological. — Recovered, 2 cases; died, none. One of these cases was a sarcoma of the forearm and one case sarcoma of the humerus.

AMPUTATIONS OF THE UPPER ARM.

Traumatic, Primary. — Recovered, 42 cases; died, 12; total, 54. Mortality, 22.22 per cent.

Traumatic, Secondary. — Recovered, 9 cases; died, 2; total, 11. Mortality, 18.18 per cent.

Pathological. — Recovered, 16 cases; died, 2; total, 18. Mortality, 11.11 per cent. The cause of death in one case was sepsis. The diseases for which amputation was done were: Sarcoma, 6 cases; tuberculosis, 2; painful stump,

3 (one died); epithelioma, 2 (one died); paralysis, 2; gangrene, 3; total of 18 cases, 2 deaths.

AMPUTATIONS OF THE FOREARM.

Traumatic, Primary. — Recovered, 47 cases; died, 3; total, 50. Mortality, 6 per cent. The deaths were due to shock.

Traumatic, Secondary. — Recovered, 4 cases; total, 4.

Pathological. — Recovered, 32 cases; died, 3; total, 35. Mortality, 8.57 per cent. The diseases for which amputation was done were: sarcoma, 2 cases; carcinoma, 8 (1 died from exhaustion); tuberculosis, 14 (1 died from exhaustion); painful stump, 4; septic hand, 3; gangrene (traumatic and diabetic), 3; tetanus, 1 (died); total, 35; 3 deaths.

AMPUTATIONS OF THE LEG.

Traumatic, Primary. — Recovered, 158 cases; died, 23; total, 183. Mortality, 13.66 per cent.

Traumatic, Secondary. — Recovered, 13 cases; died, 1; total, 14. Mortality, 7.14 per cent.

Pathological. — Recovered, 102 cases; died, 16; total, 118. Mortality, 13.55 per cent. Diseases for which amputation was done and the cases died: compound fracture of the leg, 1 case; carcinoma of leg, 1; gangrene (traumatic 5, diabetic 4, senile 5), 14; total deaths, 16 cases.

AMPUTATIONS AT THE KNEE-JOINT.

Traumatic, Primary. — Recovered, 1 case; died, 1; total, 2. Mortality, 50 per cent.

Pathological. — Recovered, 3 cases. Diseases: elephantiasis, carcinoma, traumatic gangrene, one case each.

AMPUTATIONS OF THE THIGH.

Traumatic, Primary. — Recovered, 46 cases; died, 25; total, 71. Mortality, 35.21 per cent.

Traumatic, Secondary. — Recovered, 5 cases; died, 3; total, 8. Mortality, 37 per cent.

Pathological. — Recovered, 68 cases; died, 8; total, 71. Mortality, 17.55 per cent.

Diseases for which amputation was done: elephantiasis, painful stump, enchondroma, ununited fracture, cicatricial contraction, ulcer of the leg, carcinoma of leg, gangrene, diseases of hip, osteomyelitis, sarcoma of tibia, sarcoma of femur, tubercular knee.

AMPUTATIONS AT THE HIP-JOINT.

Tuberculosis, 2 cases (1 recovered, 1 died); myxoma, 1; osteomalacia, 1; traumatic, primary, 2 (died). Total hip amputation 6 (3 recovered, 3 died).

SUMMARY OF THIRD PERIOD.

Shoulder-Joint	22 cases.
Upper Arm	83 "
Forearm	89 "
Leg	315 "
Knee-Joint	5 "
Thigh	150 "
Hip	6 "

Grand total, 670 cases.

MORTALITY PERCENTAGES FOR THE THIRD PERIOD, 1885-1896.

1. Amputation of the Shoulder-Joint.	
<i>Traumatic, primary.</i>	31.57
<i>Pathological.</i>	...
2. Amputation of the Arm.	
<i>Traumatic, primary.</i>	22.22
<i>Traumatic, secondary.</i>	18.18
<i>Pathological.</i>	11.11
3. Amputation of the Forearm.	
<i>Traumatic, primary.</i>	6.00
<i>Traumatic, secondary.</i>	0.00
<i>Pathological.</i>	8.57
4. Amputation of the Thigh.	
<i>Traumatic, primary.</i>	35.21
<i>Traumatic, secondary.</i>	37.00
<i>Pathological.</i>	17.55
5. Amputation at the Knee-Joint.	
<i>Traumatic, primary.</i>	50.00
<i>Pathological.</i>	0.00
6. Amputation of the Leg.	
<i>Traumatic, primary.</i>	13.06
<i>Traumatic, secondary.</i>	7.14
<i>Pathological.</i>	13.55

(1) The period from the founding of the hospital to 1870, represents the amputations done before antiseptics were generally used.

(2) The period from 1870 to 1890 represents the operations done while antiseptics were being introduced and had become established.

(3) The period from 1885 to 1896 represents the true antiseptic and aseptic period. The total amputations from the opening of the hospital cannot be estimated, for periods 2 and 3 overlap.

A glance at the following table, comparing the first and third periods, is very instructive. For some reason traumatic primary amputations of the arm present a higher mortality in the later period than in the first period. This is true of pathological amputations of the leg.

TABLE COMPARING MORTALITY PERCENTAGES OF MAJOR AMPUTATIONS DONE AT THE MASSACHUSETTS GENERAL HOSPITAL.

	1821-1870	1870-1890	1885-1896
1. Amputation at the Shoulder-Joint.			
Traumatic, primary	53.33	50.00	31.57
Pathological	27.27	00.00	00.00
2. Amputation of the Arm.			
Traumatic, primary	19.44	12.19	22.22
Traumatic, secondary . . . . .	....	....	18.18
Pathological	12.50	16.12	11.11
3. Amputation of the Forearm.			
Traumatic, primary	24.13	22.99	6.00
Traumatic, secondary . . . . .	....	....	0.00
Pathological	14.81	14.00	8.57
4. Amputation of the Thigh.			
Traumatic, primary	42.37	47.54	35.21
Traumatic, secondary	60.00	28.50	37.00
Pathological	20.98	23.28	17.55
5. Amputation at the Knee-Joint.			
Traumatic, primary	60.00	60.00	50.00
Pathological	36.36	50.00	00.00
6. Amputation of the Leg.			
Traumatic, primary	34.37	27.73	13.66
Traumatic, secondary	36.41	21.43	7.14
Pathological	12.60	13.78	13.55

All other amputations show a noticeable diminution in the mortality percentage.

The factors contributing to the diminution in the mortality-rate are probably several: the strict adherence to antiseptic and aseptic surgical principles in operating; perfection in the technique of operating; an intelligent care of the patient from the time of the receipt of the injury; the absence of primary hemorrhage; the greater care in the first dressing exercised by the general practitioner who sees and sends many of these hospital cases to the hospital. All these factors play an important causative part when considered collectively in diminishing the mortality following major amputation.

CÆSAREAN SECTION VS. SYMPHYSEOTOMY.¹

BY G. H. WASHBURN, M.D.

It is interesting to take a glance at the history of these two operations, and note the improved results with the progress of aseptic surgery.

Cæsarean section was first done anciently, by the Romans, on the dead mother to save the child. It was not till 1500 that the operation is known to have been performed on the living subject. Then it was done by a German sow gelder on his wife. She had been in labor four days and was attended, we are told, by thirteen midwives and several lithotomists. No progress being made, the husband, after conference with his wife, went to the town fathers to secure their permission to operate. It was granted, and having sharpened the carving knife he invited the timid to withdraw.

¹ Read before the Obstetrical Section of the Suffolk District Medical Society, March 23, 1898.

Most of the midwives retired. He then split open his spouse and delivered the baby. We are not told the subsequent treatment, but both mother and child recovered. This happy result, however, does not seem to have encouraged others, for it was thirty years or more before we have any record of a second.

The practice at first was to leave the uterus without any suture. As a result, deaths from hemorrhage were frequent, as well as deaths from sepsis.

The first real advance in operating was made by Porro, in 1876. He removed this source of danger by amputating the uterus and leaving the stump in the abdominal wound. The convalescence was very tedious, but there was no hemorrhage and less danger of sepsis.

It remained for Sænger, of Leipsic, in 1882, to inaugurate the method, which in its perfected form is used to-day. By this method there is no mutilation of the patient, there is no protracted convalescence, there is much less shock from the operation itself, and the mortality of mothers and children is now reduced to a very small percentage.

The first symphyseotomy on the living subject was done about a hundred and twenty years ago. Naples and Paris, Ferrara and Sigault, both claim the honor. Sigault's patient and child both lived, but the mother suffered for years from a vesico-vaginal fistula. Four succeeding operations were not as satisfactory in results, all the children and one mother dying.

From 1777 to 1800 the operation was done 34 times, nineteen of these being in France. The mortality, however, was so very great that the operation was abandoned. Its revival is due to Morisani, in Naples, in 1879. His limit of size of pelvis is two and five-eighths inches obstetrical conjugate. Below that, Cæsarean section. The operation is to be done at full term after labor has begun and dilatation well advanced.

The general statistics of the operation in the past ten years show a mortality of 14 per cent. of mothers and about 26 per cent. of children. If, however, we should accept Morisani's figures for his latter operations, we should have only 3.5 per cent. of maternal and 5.5 per cent. child mortality.

The dangers of symphyseotomy are hemorrhage; tears of urethra, bladder or vagina; septic infection; inflammation of joint; or failure of union. The danger in a Cæsarean section is from sepsis (and that is very small), and possibility of ventral hernia.

Statistics show a much smaller mortality for Cæsarean section, for both mother and child, than in symphyseotomy, barring the latest statistics of Morisani; and I presume that selected results in some one man's practice would be even better for Cæsarean section.

The difficulty of performing the operation is to be considered.

In Cæsarean section there are only soft parts to go through, all parts that are cut are exposed to view and any hemorrhage is easy to control. The operation is quickly finished. Few instruments are needed.

In symphyseotomy much of the cut part is out of sight. After the joint is severed, and the full three inches of separation of bone secured, you have still a difficult task before you to deliver the baby. Obstetrical forceps are usually needed, and serious tears of the soft parts are likely to result. The tissues severed are some of them those that are slow to unite. Convalescence is slow and tedious, the patient being obliged to lie in a sort of trough arrangement to insure constant approximation of the two parts of the symphysis.

Special instruments are needed; for example, Galbiati knife and metal catheter. Care has to be exercised to prevent too great separation of pubic bone for fear of injury to sacro-iliac joint.

It has been urged that symphyseotomy is the operation to choose when labor has been protracted and many fruitless efforts made to deliver the child, but now we find the same precautions urged as for Cæsarean section. It should be an elective operation, done before there has been any manipulation of uterus or child. Only thus can the best results be obtained.

Much of the prejudice against the Cæsarean operation is owing to the statistics of the operation in former years. At the present day, with modern methods of abdominal operation, the risks are very small. The mortality percentage is five per cent. or less.

It is not necessary to have perfect surroundings in order to get good results, although, of course, the chances are better where the elective operation is done with proper facilities.

During the past summer I was called upon to do two Cæsarean operations in country tenements (reported at Boston Obstetrical Society). One of these cases was done at night by the light of one kerosene lamp and a candle, in a small crowded room, on a board stretched between two trunks and covered with a boiled sheet. Both cases had been in labor more than twenty-four hours, both had had more or less manipulation; both mothers recovered and both children lived.

The result was due to several things. The mothers were in fair condition. The scrubbing of abdomen was carefully done with soap and water and nail-brush, followed by permanganate and oxalic solutions, and these again by alcohol, ether and corrosive-sublimate solution. Instruments and hands prepared with the same scrupulous care. The sheets and towels used were boiled half an hour in the wash-boiler. The uterus was lifted out of the peritoneal cavity and carefully packed around with hot, sterile towels before opening. Placenta and membranes carefully stripped off and the inside of the uterus freely washed down through the vagina with very hot lysol solution. The uterus thoroughly sutured in two layers: a deep one through the muscular portion, the stitches about an inch apart; in superficial layer, a continuous suture through the sero-serous portion, making an absolutely tight closure. The uterus fully cleaved before being put back into the abdominal cavity. Immediate contraction assured by a dose of ergot hypodermically.

I may say here that this can be done without fear if the proper preparation of ergot is used. I have for some years used Tanret's solution of ergotin, about five minims the dose. Recently I have been using a less expensive and more conveniently arranged preparation, ergot aseptic, put up by Parke, Davis & Co. in hermetically sealed half-drachm vials. The strength being double that of the ordinary fluid extract, each vial represents a dose. I have had no ergot abscesses from the use of this preparation, and it has worked very well.

The long abdominal scar is certainly a drawback; but both these women returned to hard work without any inconvenience from it. The convalescence was comfortable, and it was hard work to make them stay in bed long enough.

To my mind there is no more risk from sepsis in a Cæsarean section done with these precautions, than in a symphyseotomy.

To sum up:

(1) The operation of Cæsarean section is easier to perform.

(2) It is safer as far as hemorrhage goes or injury of adjacent parts, for example, tearing of urethra, vagina, etc.; *just as safe*, as far as sepsis is concerned (I refer of course to skilled operators); it has a less tedious convalescence, with no fear of a loose pelvis, but there is slight fear of ventral hernia.

Clinical Department.

OMENTAL HERNIA OF THE LEFT LABIUM MAJUS; OPERATION, RECOVERY.

SERVICE OF DR. F. W. JOHNSON.
REPORTED BY DR. J. M. CROWLEY,
First Assistant, St. Elizabeth's Hospital.

"THE labia majora of the female are analogous to the scrotum of the male; and the round ligaments, which are analogous to the spermatic cords, do not end in the mons veneris, but, passing downwards, enter the labia majora and distribute their filaments within the dartoid sacs, which extend like glove-fingers, downwards towards the fourchette."

Hernia of the labium major is sometimes described as inguinal labial hernia and consists of the passage of intestine, omentum, ovary, Fallopian tube, or uterus by the side of the round ligament into the labium major. Inguinal hernia, though less common in women than femoral, is not rare.

There is another form which is exceedingly rare. "It may occur in two ways: Firstly, the hernia may descend in front of the ligamentum latum, distending the vesico-uterine fold of peritoneum, and passing down between the bladder and uterus along the vagina into the labium (vagino-labial hernia); or it may descend behind the ligamentum latum between the rectum and vagina, either into the labium or perineum.

"The diagnosis is of great importance, posterior labial hernia being especially liable to be mistaken for cysts of Bartholini's glands."

Winckle found six cases of labial hernia in 5,600 patients examined by him.

Strangulation of the intestine or omentum with the characteristic signs may occur.

Diagnosis.—If the patient bear down, the size of the tumor will often be increased. Often the hernia can be readily reduced by placing the patient in the knee-chest position, returning as soon as she assumes the upright position.

The detection of impulse upon coughing, and resonance on percussion, and the possibility of diminishing the volume of the tumor by taxis and position, aid very much in making a diagnosis.

Hydrocele of the round ligament which has extended into the labium is called a hydrocele of the labium, and presents a fluctuating tumor without redness or tenderness or other indications of inflammatory trouble and is dull on percussion and of translucent appearance.

The contents of a hydrocele cannot be returned into the abdominal cavity.

Treatment.—After reducing the hernia, a truss may be worn, or, as in this case, an operation can be

done to prevent any return of the hernia. When the hernia is strangulated, an incision should be made down to the inguinal canal, and, if necessary, this incision can be continued down into the labium until the hernia is freed.

K. McG., twenty-five, single, entered the St. Elizabeth's Hospital, February, 1898. Always well and strong.

Present illness. About three years ago, while reaching up high to dust a shelf, felt and heard something give way, and felt a sharp pain in the left inguinal region. Four or five weeks later she noticed a small bunch about the size of a filbert in the left labium majus. It was soft, and could easily be "pushed back" so as not to be felt. It would, however, soon return. It slowly increased in size, until three weeks ago when it was as large as an English walnut.

During these three years she has had bearing down pains in her back and over her right side. These pains were increased by standing. Her chief complaints were pain in the back and side. The bowels were constipated.

Examination disclosed a chronic endometritis and retroflexion. No tumor was found in the labium.

February 8th the uterus was curetted, and an Alexander-Adams operation was done. On reaching the external abdominal ring, the inguinal canal was found much dilated, and in it was a portion of the adherent omentum. The little finger could easily be run down into the labium in the canal made by the omentum. The adhesions were broken up, and after slitting up the aponeurosis, the omentum was tied off at the internal abdominal ring and dropped back into the abdominal cavity. The round ligament was then stripped of peritoneum, the sac ligated and the ligament drawn out. The ligament was fastened to the internal ring, cut off and the fascia sewed over the ring and stump. The inguinal canal was then obliterated with interrupted sutures. The round ligament on the right side was also shortened.

Convalescence was uninterrupted.

A CASE OF EXTRA-UTERINE PREGNANCY.¹

BY F. W. JOHNSON, M.D., BOSTON.

The patient was sent into the St. Elizabeth's Hospital, Saturday night, February 26th, by Dr. C. M. Whitney, as an emergency case.

After hearing the history of the case through the telephone from my first assistant, I told him I thought it was a case of extra-uterine pregnancy, with rupture. After getting to the hospital and learning more of the history of the case, it seemed to me that tumor with twisted pedicle ought also to be considered.

The pulse was 120 and the temperature 100.5° F. Constant nausea with occasional vomiting was present. The bowels were constipated. The face was pale and suggested hemorrhage. The abdomen was enormously distended. On palpation, a tumor was found extending above the pubes and towards the right half-way to the umbilicus; this was found at the operation to be blood-clot. On the left was another tumor, *very* sensitive to palpation and the seat of constant pain. Above these two masses were the intestines, very much distended. The abdomen was larger than if she had been pregnant at term.

The vagina felt soft and velvety, just as it usually does during pregnancy. By vagina the two masses could be made out; and what was thought to be the uterus, pushed back and to the right, was found at the operation to be blood-clot filling the Douglas cul-de-

sac. Stimulants were given and turpentine stupes applied. A saturated solution of mag. sulph. was given in small doses.

Sunday (next day) the pulse and temperature had dropped, and she was feeling more comfortable. Still she looked like a very sick woman. During this day there was free catharsis, with some diminution in the size of the abdomen.

Monday morning Drs. W. L. Burrage and Sarah E. Palmer saw the patient with me. The temperature and pulse were about the same as on the previous day, but the nausea and vomiting had ceased. We could come to no definite conclusion, but thought the difficulty lay between extra-uterine pregnancy with rupture and commencing peritonitis, a tumor or tumors which were giving rise in some way to peritonitis, and systemic disturbance or a ruptured pus-tube. Whatever the cause, we agreed that her condition demanded immediate operation.

The pregnancy was found to have taken place in or near the fimbriated end of the left Fallopian tube. Running along the border of this tube, up into the left uterine horn, was this tumor which I show. About one quart and a pint of clotted and half-clotted blood was found in front of and behind the uterus, which was enlarged to about the size of a two months' pregnancy.

A mass as large as the fist was separated from slight adhesions behind the left broad ligament and from the Douglas cul-de-sac. This contained the fetus and placenta which I show.

Part of the left broad ligament, which formed part of the pedicle of this solid tumor, was clamped, cut, and sewed over and over with catgut. The abdominal cavity was washed out as thoroughly as the patient's condition would admit with normal salt solution. The right tube and ovary were not removed. They were normal, except for recent adhesions, which were separated. One twenty-fifth of a grain of strychnia was given subcutaneously three times; a quart of salt solution was put under the left breast; and a pint of salt solution was put in the abdominal cavity while the patient was on the table. No drainage was used. The foot of the bed was elevated eighteen inches.

The following is a brief history of the case as far as it relates to the ruptured extra-uterine pregnancy:

She is married, thirty-eight years of age. She was married when nineteen years of age and had a child a year later. Never pregnant again until this time. Her first husband died three years ago. One year ago she married her present husband.

Menstruation began at twelve. Always regular until December, 1897. Unwell at the regular time in December, but flowed less than usual. In January, at the time she should have been unwell, there was quite a severe hemorrhage from the rectum.

Tuesday, February 22d, she first had pain in the left ovarian region. This increased until Thursday night, the 24th, when it became excruciating and was followed by collapse.

Dr. Whitney found her Friday morning in a state of collapse, and as soon as practicable sent her into the hospital. Two weeks previous to her present illness, Dr. Whitney had found the solid tumor in the left side.

The pulse kept at about 140 during the whole operation.

She made a good recovery and has gone home.

¹ Reported at the meeting of the Obstetrical Section of the Suffolk District Medical Society, March 23, 1898.

Dr. M. H. Bailey's report: "The macroscopic examination of the specimen shows a ruptured tube (which had contained a fetus of about three months) apparently attached to the uterus via the surface or deeper portion of a myo-fibroma, about the size of a large cocoanut. Everything was free without adhesions, the tumor being attached to the uterus by a small pedicle. The tumor, on section, shows the characteristics of a multiple edematous myo-fibroma, with hemorrhages in places. The ovary located between the tumor and the fetal expansion of the tube. The microscopic examination establishes the above diagnosis, except that no tube structure was found."

Medical Progress.

ORTHOPEDIC REPORT.

BY E. H. BRADFORD, M.D., AND E. G. BRACKETT, M.D., BOSTON.

FORCIBLE CORRECTION OF THE DEFORMITY IN POTT'S DISEASE.

THIS has been occasionally attempted in the pre-anesthetic days, but Chipault within a few years recommended forcible rectification of deformity from caries in a child placed under anesthesia.¹ He finds, however, that a recurrence of the curve takes place, and advises wiring the spinous processes together as recommended by Hæda, or the use of a clamp resembling Malgaigne's hooks. Relapses have been reported by others.²

Calot claims unusual success in 204 cases, and no deaths at the time of the operation, though three deaths within three months.³ He employs an unusual amount of force (40 to 80 kilogrammes), with forcible traction on the head, arms, feet, and correcting pressure upon the hump, the child being placed face downwards upon a resisting surface supporting the shoulders and hips; and in two cases he made a cuneiform resection of the projecting portion of the vertebræ.

Menard⁴ and Regnault⁵ claim that repair to a straightened spine may take place at other portions than the gap left after straightening, and Ducroquet shows radiographs of repairs of the gap.

Calot's favorable results have not been equalled by other surgeons.

Menard⁷ reports death from rupture of an abscess.

Lorenz⁸ reports the production of paralysis by forcible straightening, and Malherbe the fracture of a spine.⁹

Jonnesco¹⁰ reports three deaths in thirteen reductions, one attributed to chloroform, and C. Willems, of Ghent, speaks of the dangers of chloroform in this procedure.¹¹

Jonnesco,¹² instead of manual extension by assistants used by Calot, has used mechanical force by

pulleys. Jeannel and Vulpus¹³ also favor pulley traction. The amount of tension used has never been over 80 kilogrammes, and is usually from 45 to 50, according to Jonnesco. He avoids thick padding, and uses the simple undershirt. He uses for a table four rigid bars, supported by legs, and on this are placed two padded blocks of wood, one of which is fixed near the end of the table, and the other is movable. For the traction, he uses a head sling made of linen, and fastened to a cross bar, which is attached by a rope to the wall. For the pelvic traction, he uses a binder, which fastens around the pelvis, and in all cases he uses a dynamometer to record the amount of pull.

Traction is made first without manual pressure; and it is found that under this, the knuckle rapidly diminishes, but does not disappear. Pressure is made then, with the hand of the surgeon, over the deformity, one assistant raising the lower limbs, and another supporting the lumbar vertebræ. Under this, he finds the deformity can be rapidly corrected. Plaster is applied, taking in nearly the whole trunk, pelvis, and most of the head, using as little padding as possible. This is not done during etherization, as he considers this unadvisable.

He considers the indications for these are recent non-anchylosed cases, but has reduced anchylosed cases in adults without much difficulty. He does not think that as yet the limitations of the operation can be definitely fixed, but gives the following conclusions:

(1) Rapid reduction at one sitting is an excellent treatment for Pott's curvature.

(2) Direct pressure must be applied to the deformity, while extension and counter-extension are being used.

(3) Traction must be applied by means of pulleys.

(4) Traction ought to be applied to the head and pelvis, and not to the superior extremities, as advised by Jeannel.

(5) As a rule, 45 to 50 kilogrammes of traction are all that should be used. In exceptional cases 80 kilogrammes may be required.

(6) Chloroform is dangerous, and ought only to be used during the operation, not while the dressings are being applied. In cases of recent deformity without anchylosis it may be possible to omit all anesthetics.

(7) With the exception of the dangers of anesthetics and broncho-pneumonia, the post-operative accidents are of but little importance.

(8) The method can be used in almost any case of kyphosis, but it gives the best results in recent cases in the young.

(9) All preliminary cutting operations are useless and dangerous.

Demicé¹⁴ is opposed to this method, preferring more gradual means.

Mouod¹⁵ favors the procedure in early cases.

Pean has met with success in a severe case of five years' standing with paralysis, but thinks that subsequent fixation treatment for a long time is necessary.

Several instances of immediate recovery from paralysis are reported.

Jones and Tubby¹⁶ report 11 cases, with partial rectification in five cases and complete in six.

¹ Chipault: *Mal de Pott*, Paris, 1897, p. 2; *Gaz. d'Hôp.*, 1897, 21, 197, 300; *Poësse Méd. de Paris*, 1897, 240.

² Vincent: *Lyon Méd.*, 1897, 27, 323.

³ Calot: *Archives, Prov. de Chir.*, 1897, vi, 65; *Rev. de Ther. Méd. Chir.*, 1897, lxiv, 573.

⁴ *Gaz. de Paris*, 10, s. 1, 231.

⁵ *Comptes Rendu de Soc. de Biol.*, 1897, 10, s. iv, 793.

⁶ Twelfth International Congress, Section of Surgery.

⁷ *Gaz. Méd. de Paris*, 1897, x, s. 1231.

⁸ *Deutsch. Med. Woch.*, 1897, 218.

⁹ *Ann. de Chir. et d'Ortho.*, July, 1897, 218.

¹⁰ *Gaz. d'Hôp.*, 1897, lxx, 656.

¹¹ *Journal American Medical Association*, 1897, p. 505.

¹² Tenth International Congress of Medicine at Moscow, August, 1897.

¹³ *Archiv. Povo. de Chir.*, 1897, vi, 383, and *Munch. med. Woch.*, 1897, 36.

¹⁴ *Paris, Ruff et Cie*, 1896.

¹⁵ *Bull. de l'Académie de Méd. et Chir.*, Juni 8, 1897, p. 695.

¹⁶ *British Medical Journal*.

Redard¹⁷ recommends the operation for early cases; prefers to use narcosis.

Bilhaut¹⁸ recommends the removal of projecting spines as a preliminary operation. Narcosis is employed. The method to be used in moderate cases. The plaster corset is to be split at the sides.

TREATMENT OF THE PARALYSIS OF POTT'S DISEASE BY OPERATION.

Diakonoff¹⁹ describes this operation in three cases, two dying after the operation; in the third complete paralysis was present. An incision along the transverse processes of the second and third dorsal vertebræ was made. A pus cavity was discovered which connected with the spinal canal. Carious portions of bone were removed by curette and the spinal canal was reached. The dura was found intact. The cavity was drained and the wound sewed up. Twenty-three days after the operation, mobility of the paralyzed muscles was established, and a month later the patient was able to walk.

A CASE OF DISTORTION OF THE AORTA IN POTT'S DISEASE.

Dr. Thomas Dwight²⁰ gives a contribution to the deformity found in severe Pott's disease, which has already been described by Bouchacourt. The case was one of marked antro-posterior curve in the mid and lower dorsal region, with no sign outwardly of lateral deviation or twist of the column. The deformity of the aorta "resembled that of the fifth type described by Bouchacourt, or might be compared to a letter S lying on the side with the ends bent strongly back, so as to surround the prominence of the spine." The case is well illustrated and very accurately described, and is a distinct addition to the present knowledge of this, perhaps, rather rare deformity.

CUBITUS VALGUS AND CUBITUS VARUS.

Raffel²¹ states that the deformities coexist most frequently with other rachitic lesions of the vertebral column, the pelvis, etc., with atrophy and arrested development of the skeleton. In general the deviation of the elbow is bilateral, and without doubt is developed in early infancy before the age of three years. According to Mikulicz it is exclusively seen in the curved forms of rickets, and is unnoticed in the midst of other accompanying deformities. It is certain that this is the case in a large majority of instances, but it is probable that the pathological attitude of the elbow can under exceptional conditions develop itself in second infancy or in adolescence. The deformity consists of an abnormal curvature of the humeral diaphysis. This is the only method of production as yet known of cubitus valgus; but this is not the case in cubitus varus, as there are anatomical specimens which prove that this may result from a curving of the diaphysis or an anomaly of the epiphysis. In some cases there is a double curve. The writer does not believe in the development of this deformity from muscular action. This, however, is the opinion held by Mikulicz and Nicoladoni in many instances.

GENU RECURVATUM.

Bilhaut²² reports the case as congenital genu recurvatum, with absence of patella. The position of the patella showed a depression, and there was also a forward dislocation of the tibia. The leg was placed in the position of flexion, held by bandages. These were renewed every ten days for a while, and later the limb kept straight. Ten years afterwards the case was seen, and there was scarcely any trace of the original deformity.

The author claims that he regards this position of flexion the proper position in the treatment of this class of congenital deformity.

A STUDY OF THE CONGENITAL MALFORMATIONS OF THE KNEE.

Potel (Lille) has investigated 800 cases of congenital deformities of the knee-joint, and has classified them as follows: as defects of the femur, bifurcation of the lower epiphysis of the femur with alteration of the condyles, defects of the tibia, splitting of the upper epiphysis of the tibia, defects of the fibula, and defects of the tibia and fibula. These are chiefly cases of imperfect development. Distortions due to abnormalities of the muscles also occur, and among these are absence or atrophy of the patella with a backward curving at the knee, a lack of development of the quadriceps. If the defect takes place at the beginning of the third month of embryonic life, absence of the patella results; if after the third month, an atrophy of the patella or contracture of the quadriceps takes place which causes a genu recurvatum. A split of the patella, with a separate insertion of the vastus externus muscle, may take place. A congenital contracture of the flexor group may also take place, with a contracture of several of the muscles due to imperfect development of the embryonic nervous system. Abnormality of the ligaments may take place, with dislocation of the patella, genu valgum and genu varum, and also a dislocation at the knee-joint.

Little²³ reports three cases of absence or delayed development of the patella, and gives tables of 42 reported cases.

THE DISAPPEARANCE OF GENU VALGUM BY FLEXION.

Gerard²⁴ explains this phenomenon as attributable to several causes, chiefly in the movements at the knee and in the movements at the hip. In the movements of the knee there is a relaxation of the internal and external ligaments and an exaggeration of lateral movements. There is a diminution of the solidity of all the periarticular tissues. At the hip-joint the movements of external rotation and of abduction, which are made unconsciously, are influential in producing the change of the direction of the tibia.

SPONTANEOUS DISLOCATION OF THE HIP OCCURRING DURING THE COURSE OF ACUTE INFECTIOUS DISEASES.

Daniel N. Eisendrath²⁵ gives the report of an unusual case of this rather rare affection, and considers the different series of cases which have been reported. This accident in the course of acute diseases has been long recognized; first described by Lorinser in 1853.

¹⁷ International Congress, August 26, 1897.

¹⁸ *Annals of Surgery and Chir.*, July, 1897.

¹⁹ *Centralblatt für Kinderheilkund.*, 1896, p. 309.

²⁰ *American Journal of Medical Sciences*, January, 1897.

²¹ *Revue d'Orthopédie*, 1897, No. 243.

²² *Ann. Chir. et Orth.*, September, 1897, p. 257.

²³ *Lancet*, September 25, 1897.

²⁴ *Revue d'Orthopédie*, March, 1897.

²⁵ *Annals of Surgery*, October, 1897, p. 443.

The early cases were reported first as having occurred in the course of typhoid, and later in scarlet fever. It has been pretty generally conceded that it has a mechanical origin, due to the stretching of a capsule by a large effusion, and that during some sudden movement the relaxed capsule allowed the dislocation of the joint. It was usually found after the recovery from the fever, and was supposed to have occurred some time during the acute condition attended by restlessness on the part of the patient. So far the cases have been reported as occurring either in typhoid fever, acute articular rheumatism or scarlet fever.

Franke, in an article upon the result of influenza upon bones and joints, has reported a case in which there was exudation in the ankle and knee, and this bears out the author's case. It was of a girl eleven years old, who was admitted to the hospital with a severe attack of influenza. During this attack she complained of severe pain in both hips. After recovery she walked with marked limp, which continued until her admission to the hospital five months later. At this time a diagnosis was made of spontaneous backward dislocation of the right femur occurring during an attack of influenza. A preliminary treatment was begun by the application of extension with the child in bed. Later, an operation was undertaken for the reduction of the dislocation, and the femur was found imbedded in fibrous tissues, adherent to the ileum; the two acetabula, true and false, formed a right angle with each other. There was but little left of the capsule, and this only upon the outer posterior aspect of the head. No ligamentum teres was seen. The true acetabulum was filled with inflammatory tissue, and after removing this, it was found that the cartilage was eroded in several places, but the joint cavity corresponded exactly to the size of the head, showing it to be a recent dislocation. There was no evidence of any tuberculosis. The head was brought into the acetabulum by traction, and the wound sutured. The case was one of special interest, as it enabled one to see the pathological result in a case of this sort soon after the original dislocation.

THE ETIOLOGY AND TREATMENT OF CONGENITAL DISLOCATION OF THE HIP-JOINT.

Heusner²⁶ summarizes the history of the various theories as to the origin of this deformity, without coming any nearer to a conclusion than previous writers, who, like Hippocrates, attributed the deformity to uterine pressure; or Malgaigne, who supposed that an early hydrops of the joint was the cause; or Dupuytren, who thought the femur had been placed in a position of exaggerated flexion; or Grawitz, who supposed a lack of proper development of the epiphysis; or Verneuil, who claimed that there was a paralysis of certain groups of muscles following birth, and who offered a prize of 3,000 francs for an undoubted case of genuine intra-uterine dislocation. Heusner, however, considers that true congenital deformities have been proved, both clinically and in autopsies.

In regard to the treatment by the so-called bloodless method of reduction, the writer is of the opinion that sufficient experience has not been collected to enable us to determine as to the value of this method and the limits of its usefulness. He has devised apparatus for the use of considerable force for the pur-

pose of the reduction of the deformity without incision. The apparatus consists of pulley traction in the long axis of the leg, with forced abduction and traction vertical to the direction of the leg, applied at the trochanter. Considerable force is used. He has discarded the use of plaster-of-Paris after the operation, except in unusual cases, though he applies stiffened bandages. As after-treatment, he uses an abduction apparatus.

CONGENITAL DEFECTS OF THE DIAPHYSIS OF THE FEMUR.

Lange²⁷ describes three cases of this unusual affection. The etiology is not known. An attempt at a diaphysis appears to be present, but the growth of it is hindered for some unknown reason. The treatment consists in arranging for as much use as can be made of the limb, and not in using it as the stump of an amputated thigh for the socket of an artificial limb, but as a support for the weight of the body.

FRACTURE OF NECK OF THE FEMUR IN CHILDHOOD.

Whitman²⁸ considers that the determining causes of the deformity of the neck are imperfect treatment, too early use of the limb during the stage of repair, and a sinking of the neck from the strain of locomotion. The writer claims that the statements usually made that fracture of the neck of the femur does not occur in childhood are erroneous.

METHODS OF DETECTING AND MEASURING ABDUCTION AND ADDUCTION OF THE THIGH.

Hoffman²⁹ describes a method of instantaneously detecting abduction and adduction by placing the two limbs together on the adducted side. The furrow at the bend of the thigh will be deeper and longer than the other. If it is abducted the furrow will be shallow. The genitals in the fold between the buttocks will always point toward the adducted and away from the abducted thigh. To measure the amount, he records the distance from one anterior superior spine to the other. Midway between these points a dot with an aniline pencil or ink is made. A mark is then made directly over the symphysis pubis; a string is then applied from the upper to the lower mark and down the thigh and leg to below the soles of the feet. If there is no adduction, the string falls midway between the two inner condyles and the internal malleoli. If either limb is abducted, both the condyles and the malleoli will be outside the string; if adducted, they will be inside the string.

DIAGNOSIS OF FLAT-FOOT.

Galloway³⁰ deprecates the name of valgus as a synonym for flat-foot, as valgus is but one element of the deformity of flat-foot. The term pronated foot is also not favored by the writer as not being sufficiently accurate. He prefers to retain the name of flat-foot as being clinically accurate, even if it is not anatomically correct. The clinical symptoms which he lays stress upon are pain, tender points, limitation of motion, loss of elasticity in gait, and hot, cold or numb feet. There is sometimes swelling. He considers the best guide an examination of the imprint of the foot.

(To be continued.)

²⁷ Deutsche Zeitschrift für Chirurgie, Bd. xliii.

²⁸ Annals of Surgery, 1897, p. 674.

²⁹ St. Louis Medical Review, June 12, 1897.

³⁰ Canadian Journal of Medicine and Surgery, 1897.

²⁶ Zeitschrift für Orth., p. 276.

Reports of Societies.

AMERICAN MEDICAL ASSOCIATION.

FORTY-NINTH ANNUAL MEETING, DENVER, COL.,
JUNE 7-10, 1898.

(Concluded from No. 25, p. 596.)

SECOND DAY. — GENERAL SESSION.

THE Association was called to order by the Second Vice-President, DR. THOMPSON.

DR. DUDLEY S. REYNOLDS, Louisville, presented a resolution to the effect that after January 1, 1899, any college professor or other teacher that shall confer any degree upon any person not complying with the standards of the American Medical Association regarding educational requirements, shall hereafter be excluded from meetings of the Association. This was referred to the Executive Committee.

A resolution by DR. W. W. KEEN, of Philadelphia, was also introduced, favoring vivisection for experimental research, which was referred to the Executive Committee.

DR. H. A. HARE, of Philadelphia, offered a resolution relative to the State and County medical societies of New York, asking that they be allowed to send regularly recognized delegates to the Association. Referred to Executive Committee.

DR. GEORGE M. GOULD, of Philadelphia, presented a resolution the effect of which was to encourage the establishment of medical libraries throughout the United States. Referred to Executive Committee.

DR. WM. BAILEY, of Louisville, introduced an important matter in the form of a resolution to the effect that the office of General Secretary be created, with a salary not to exceed \$2,500 or \$3,000 per annum. He said that the Association had grown to such proportions that the services of at least one salaried man were required who would devote his entire time to the interests of the Association. By this resolution the present Secretary, Dr. Atkinson, would be retained as an honorary officer. Resolution referred to Executive Committee.

DR. SANDERS, of Alabama, recommended, in a series of resolutions, that the Association take steps leading to the establishment of public health bureaus, having their roots in every city and town in the land, and an executive head in the national government.

DR. HUMISTON, of Ohio, read a report adopted by the Ohio State Medical Society regarding the anti-vivisection bill, and recommended that in addition to the other committees being named, one should be composed of residents of Washington, Philadelphia and Baltimore. Under this arrangement there would be assurance of prompt attendance of committeemen whenever the bill referred to came up.

DR. J. H. MUSSER, of Philadelphia, then read the general Address in Medicine. He selected for his theme

AN ESSENTIAL OF THE ART OF MEDICINE.

The closing years of the eighteenth century and the early years of the nineteenth century marked an epoch in medicine as transcendent for its welfare as the events of the past decades bespeak for the glory of the medicine of the future. The state of medicine in the eighteenth century was described as the result of deductive methods of reason, made possible because

of the want of instruments of precision. Elaborate classification of disease and refinements of symptomatology which serve only to amuse and appall were the result. The sway of the imagination and the rule of theory were all powerful. Speculative modes of treatment grew out of the specious pathology. These modes of treatment were referred to. Venesection, polypharmacy and stimulation were followed by expectant treatment and nihilismus.

The limitations of the inquiry in diagnosis were outlined. Diagnosis was an intuition and an art. Cullen said theory could control observation. But medicine as a science was no higher nor lower than cognate departments of knowledge.

The development of the other sciences was outlined. Science was not applied to industrial arts at this time, and so they were carried on by rule-of-thumb methods. Medicine ceased to be deductive; its practice began to be scientific.

The development of medicine during the present century was outlined. Medicine has grown to be a science—a department of the science of biology. The history is the history of the application of scientific habits of thought to experiment, observation and analysis. Medicine grew to a science by the labors of physicians who were naturalists. The influence of inductive reason on other sciences was elaborated, and its effect on theology, history and sociology, stated.

Clinical medicine, as a science, embraced diagnosis and therapeutics. Methods of diagnosis of the present day require a scientific habit of mind and skill in the use of instruments of precision. The scope and positivism of diagnosis was shown, as fifteen diseases can now positively be recognized, without any possibility of error. Diagnosis has grown to be scientific, precise and positive. Error in method leads to error in diagnosis. Therapeutics grew to a science by the influence of various forces, all the outcome of the mode of thought of the naturalist. Natural history of disease first described; disease self-limited. The science of statistics showed the fallacy of determining the value of a drug from a small number of cases. Analysis of 12,000 prescriptions showed that various drugs were called for about 31,000 times, and preparations of nuxvomica, iron, opium, mineral acids, cinchona and its salt, mercury, ipecac, bismuth, belladonna, arsenic, squills, hyoscyamus and digitalis were called for in one-third of the total, and if external remedies and excipients are excluded, in one-half.

Scepticism arose because too much was claimed. The more incurable the disease the greater the number of drugs claimed to cure it. The more virtues a drug is said to have, the less its probable value. Polypharmacy was assaulted in the past, but still holds sway. The treatment of diphtheria by antitoxin was the only scientifically established mode of therapeutics.

Drugs have no doubt an action in health and disease. Their use may be of advantage, but usually is not necessary. We need not be sceptical about the power of the drug, but about its necessity. Some say we are robbed of the power of mental expectancy if drugs are not given. Such expectancy and hypnotism, for therapeutic purposes, can be secured by an honest examination of the patient. The "lie" is not required in medicine any more than in religion, as Zola points out.

Application of science to industrial art at the present time shows in every department that scientific

methods are necessary. Brewing, iron making, leather making are no longer arts but sciences. Art is gone; science holds sway. Large amounts of capital involved, and great competition, have forced out the element of chance as in art, and instituted the element of certainty that approaches in the science.

As the essential to the art is the science of medicine, we must educate our students to a scientific habit of thought.

THIRD DAY.—GENERAL SESSION.

The Association met at 11 A. M., with the Fourth Vice-President, DR. HAPPEL, in the chair.

REPORT OF BOARD OF TRUSTEES.

This was read by DR. GARCELON, of Maine. He said that the Association was to be congratulated on its growth and prosperity. The Board noted with pleasure that the leading medical colleges were lengthening their curriculum of instruction. Reference was made to the growth of the *Journal* from 1883, when the experiment was first tried of publishing a weekly, to the present time. The first issue was circulated July 1, 1883, and 3,500 copies of that date were printed, being largely in excess of the membership of the Association. At this time the membership, including both delegates and permanent members, did not exceed 1,500. For the succeeding years the growth of membership was slow, there being during 1887 only an increase of 161. Since then the membership has materially increased, as well as the general circulation of the *Journal*. The appearance and general make-up of the paper were highly satisfactory. Viewed as a medical newspaper, it now undertakes to publish everything in current news that will interest the physician. Then follows a financial statement of the *Journal* for the fiscal year, ending December 31, 1897, showing a balance on hand of \$14,092.85. To the report was appended an inventory of the *Journal* property. The balance in the treasury was so satisfactory, that the Board directed an additional \$10,000 be placed to the credit of the investment fund created by the Association in 1896 for the purpose of providing a permanent building for the home of the *Journal*. In accordance with the recommendation, the Board has become an incorporated body, and has definite standing as a legal corporation.

In conclusion, the Board recommends that each member make a renewed effort to increase the membership, encourage subscriptions, and extend the good influence of the Association for the advancement of medical knowledge and the general welfare of the profession.

On motion, the report was ordered printed, and Dr. Garcelon extended a vote of thanks for reading it.

DR. GIHON reported, on behalf of the Rush Monument Fund, that he had received nearly \$12,000.

DR. U. O. B. WINGATE, Milwaukee, read the

REPORT OF SPECIAL COMMITTEE ON DEPARTMENT OF PUBLIC HEALTH.

The bill, already familiar to the profession, was referred to and its salient points outlined. The report closed with the following resolutions:

Resolved, That the Committee be continued; that the bill as now perfected and before Congress be approved,

and that the Committee use its best endeavors to have it passed by Congress.

Resolved, That the members do all in their power to urge upon their Representatives the passage of the bill.

Resolved, That the Association appropriate the sum of one thousand dollars, or so much thereof as may be necessary, for the use of the Committee, in the endeavor to have this measure passed.

On motion, report was referred to Executive Committee with power to act.

DR. H. O. WALKER, Detroit, read the

REPORT OF THE COMMITTEE ON NOMINATIONS.

For President, Dr. J. M. Mathews, Louisville. First Vice-President, Dr. W. W. Keen, Philadelphia. Second Vice-President, Dr. J. W. Graham, Denver. Third Vice-President, Dr. H. A. West, Galveston. Fourth Vice-President, Dr. J. E. Minney, Topeka. Treasurer, Dr. Henry P. Newman, Chicago. Librarian, Dr. George W. Webster, Chicago. Trustees: Drs. Alonzo Garcelon, Maine; T. J. Happel, Tennessee; I. N. Love, Missouri; to fill vacancy, H. L. E. Johnson, District of Columbia. Members of Judicial Council: Drs. S. S. Bailey, Iowa; D. R. Brower, Illinois; H. D. Didima, New York; D. Mason, Washington; F. T. Rogers, Rhode Island; M. B. Ward, Missouri; to fill vacancy, W. S. Jones, New Jersey. General Addresses: Medicine, Dr. J. C. Wilson, Pennsylvania; Surgery, Floyd W. McRae, Georgia; State Medicine, D. R. Brower, Illinois. Place of Meeting, Columbus, O. Time, June 7-10, 1899. Chairman Committee of Arrangements, Starling Loving, Columbus. Assistant Secretary, E. W. Woodruff, Columbus.

On motion, the report was unanimously adopted.

The Executive Committee reported through its Secretary, Dr. Bulkley, that under the existing laws of the Association, it did not feel competent to recommend the adoption of the suggestions contained in the President's address.

Relative to the Rush Monument Fund, the Executive Committee endorsed the nomination of Dr. Henry D. Holton as Treasurer for the funds, as recommended by Dr. Gihon in his report at a previous general session.

The Executive Committee had examined the Treasurer's report, and had found it correct and the books neatly kept.

The Executive Committee recommended the adoption of the resolutions offered by Drs. Dudley S. Reynolds, W. W. Keen, Geo. M. Gould, and Wm. Bailey, and their action was ratified by the Association.

As to the Hare resolution in relation to admitting the New York State and New York County Medical Societies, the Executive Committee reported that while it was fully in sympathy with and endorsed the idea proposed in the resolution, it felt that it involved a question which did not properly come within the province of the Executive Committee, and that the matter concerned the Association at large.

After a spirited debate, participated in by Drs. Hare, Scott, Ferguson, Love, Munn, Jackson, Bishop, Meyer, the President (Dr. Happel) declared the matter out of order, amid great laughter and cheering.

The Executive Committee favored, and the Association adopted, the button of Dr. Stone as the permanent button of the Association.

As to the recommendation in the report presented by Dr. Humiston, the Executive Committee did not recommend the appointment of such committee.

DR. JOHN B. MURPHY, of Chicago, then delivered the General Address in Surgery. He selected for his subject,

SURGERY OF THE LUNG.

He stated that an analysis of the accomplishments in this special line of work was of great interest, the advancements having been made by individual and unsupported efforts. The profession at large had never entered into this field with the enthusiasm, persistency and energy with which it had invaded other fields, as the peritoneum, the genito-urinary, and the osseous and nervous systems.

The author then took up and considered at great length the early history of lung surgery, after which he discussed the anatomy of the lung, the lymphatics, and the physiology of respiration.

In considering operations upon the lung several questions arise: (1) Is the lung situated in its bone-bound cavity accessible to surgical manipulation? (2) What are the difficulties and dangers encountered in entering this bony cavity? (3) To what extent may this wall be removed and replaced and what latitude of manipulation is permitted within the chest? (4) What will be the effect of opening the pleura of pneumothorax in cases of adhesions, and without adhesions? (5) How can its dangers be avoided or lessened? (6) Should the pleura be closed or drained? (7) Can the lung be incised, excised, or defunctionalized? (8) In pneumotomy, what are the dangers and limitations? They are hemorrhage from opening in the chest, and pneumothorax from opening the bronchi; also pleuritis of the same and opposite side, and traumatic pneumonia, and sepsis. (9) What are the pathological conditions of the lung requiring excision? They are hernia, infected injuries, abscesses, bronchiectasis, gangrene, the removal of foreign bodies, tubercular cavities, hydatids, and actinomycosis. (10) In pneumotomy, what are the dangers and limitations? They are (immediate) hemorrhage, pneumothorax, and dyspnea; (secondary) shock, dyspnea, hemorrhage, sepsis, pleuritis, and pneumonia on the opposite side.

Dr. Murphy then dwelt upon the best method of treating the intra-thoracic stump, and of drainage and closure. He also expatiated upon the pathological histology of repair of the stump, etc. (11) How is the chest filled after excision? What are the pathological conditions in which excision is desirable or required? They are neoplasms of the chest wall involving the lung; circumscribed tuberculosis. (12) How may the lung be defunctionalized artificially and quiescence maintained? By injections into the pleural cavity, and by resection of the ribs which allows the chest wall to collapse; thoracotomy with separation of pleural adhesions and compression of the lung. (13) What are the technical difficulties of intra-pleural injections? They are adhesions and consolidations. What are its technical dangers? They are air embolism, subpleural emphysema, pulmonary emphysema, dyspnea and sepsis. (14) How can we determine that the injected material is passing into the pleural cavity and not into the lung tissue or bronchus? What is the most desirable material to use for injection? What are the effects of this

pulmonary quiescence on the healthy lung? What are the effects of this pulmonary quiescence on the diseased lung, particularly in tuberculosis? How long must the lung remain functionless that the process of repair in tuberculosis may be complete? Are pleuritic effusions beneficial or prejudicial to the repair of tuberculosis of the lung?

Pathology indicates and clinical experience justifies resection of ribs to allow collapse of the lung. The same conditions demand thoracotomy with separation of adhesions and compression of the lung. What are the dangers of operation on and injuries to the chest wall? They are shock, hemorrhage, pneumothorax and sepsis.

Shock, hemorrhage, pneumothorax and sepsis were then taken up *seriatim* by the author and considered at length. Then followed extensive observations of the action of the lung in the human subject.

Dr. Murphy next considered the diagnosis of pneumothorax and its treatment. He also touched upon the following subjects: hernia of the lung and its treatment; wounds of the lung; infective lesions of the lung, their etiology and treatment; abscess of the lung and its treatment; bronchiectasis; gangrene of the lung; foreign bodies in the lung; tuberculosis of the lung; incision and drainage of tubercular cavities; hydatid cysts; actinomycosis of the lung; neoplasms of the chest wall and lung requiring pneumectomy.

The author then gave an exhaustive numerical summary of the cases operated on both by himself and other eminent surgeons, as collected from the literature of the subject, for the following conditions: gangrene of the lung; abscess of the lung; bronchiectasis; tuberculosis of the lung; foreign bodies in the lung; neoplasms of the lung; and gave the results, favorable or unfavorable, of the various operations.

Dr. Murphy was extended a vote of thanks for his interesting and instructive address, after which the Association adjourned.

FOURTH DAY.—GENERAL SESSION.

DR. HAPPEL in the chair.

DR. WILLS, of California, offered an amendment to the Constitution to the effect that the President, Vice-Presidents, Treasurer, Librarian, Secretary, Assistant Secretary, and Chairman of the Committee of Arrangements, shall be nominated by a special committee consisting of one member from each State represented at the meeting, and they shall be elected annually by vote and shall hold office until their successors are elected. [This amendment lies over one year.]

DR. HAPPEL offered the following:

Resolved, That an exact time be fixed at future meetings of the Association by the Committee of Arrangements when the different general addresses shall be delivered, and that when that time arrives all business shall be laid aside till the addresses have been finished. [Lies over one year.]

DR. C. LESTER HALL offered a resolution, that the Permanent Secretary furnish to incoming secretaries of Sections, a list of names of those attending the various Sections each year. Adopted.

The Committee on Transportation for the next meeting consists of Drs. H. L. E. Johnson, I. N. Love, C. A. L. Reed, X. C. Scott, E. D. Ferguson, and Starling Loving.

DR. LOVE presented the following resolution :

Resolved, That the Permanent Secretary be required to have the official stenographic report of the proceedings of the general sessions transcribed verbatim and ready for consideration and correction, if need be, each day before being adopted. [Carried.]

A resolution was offered and carried, that the Permanent Secretary furnish a copy of the Constitution and By-Laws and Code of Ethics to the proper authorities who have in charge the preparation of the program with instructions to print the same in the regular official program each year hereafter.

AMENDMENTS TO THE CONSTITUTION AND BY-LAWS.

(1) Offered by DR. W. L. WILLS. Art. IV., Officers : Amend to read, "Each officer shall hold his appointment for one year, and until another is elected to succeed him." This was tabled.

(2) Offered by DR. H. B. ELLIS. Art. IX, Conditions for Further Representation : "Any State or local medical society or other organized institution, whose rules, regulations and code of ethics agree in principle with those of this Association may be entitled to representation on the advice or agreement of the Judicial Council." This amendment was also tabled.

(3) That the name of the Section on Dental and Oral Surgery be changed to that of Section on Stomatology. Adopted.

(4) Offered by DR. L. D. BULKLEY. "That all new business shall be introduced not later than the third day of the session." To this amendment there were added the words, "unless there be objection," after which it was adopted.

After the presentation and adoption of resolutions of thanks, the Association adjourned to meet in Columbus, O., the first Tuesday in June, 1899.

The official registration of members present was 1,336.

SUFFOLK DISTRICT MEDICAL SOCIETY. THE SECTION FOR OBSTETRICS AND DISEASES OF WOMEN.

C. H. HARE, M.D., SECRETARY.

REGULAR Meeting, Wednesday, March 23, 1898,
DR. F. W. JOHNSON in the chair.

DR. F. W. JOHNSON reported a

CASE OF EXTRA-UTERINE PREGNANCY.¹

DR. GEORGE H. WASHBURN read a paper on

CÆSAREAN SECTION VS. SYMPHYSEOTOMY.²

DR. SWIFT : I have done one symphyseotomy, and in that I did not encounter any of the disadvantages which Dr. Washburn has enumerated. When I was called to the case I had no idea that I was going to do symphyseotomy, and I had no special instruments. I found it a very simple operation. The convalescence was rapid, and mother and child are now perfectly well. In cases where it is known beforehand that a disproportion between the head and pelvis exists, I think Cæsarean section is the operation of election. The place for symphyseotomy is in cases where labor has been in progress some time and the patient is exhausted. I think that in opening the abdominal

cavity there is always a liability to shock, and if the woman is in an exhausted condition that would have a tendency to throw the balance unfavorably. From my experience I don't see why there should be any more shock in symphyseotomy than in any of the ordinary obstetric operations.

DR. STORER : Having had no experience with either operation, I can only say my prejudice is entirely in favor with Dr. Washburn's contention that, other things being equal, the Cæsarean section is the operation of election. The perfected Cæsarean section is an operation of very little danger in the hands of trained abdominal surgeons. After symphyseotomy a very great number of cases have had by no means the uneventful convalescence of Dr. Swift's case. A great many cases the reports of which I have read had very untoward symptoms indeed in the convalescence, and lack of union of bones and trouble with the bladder. As regards Dr. Englemann's preference for symphyseotomy for an emergency operation, it does not seem to me that the fact of an operation being an emergency operation in any way contraindicates a Cæsarean section. The preparations that must be made can be made almost anywhere. The instruments needed are very few, as Dr. Washburn says. The obstetrician who is not at home in the abdominal cavity certainly will do very much better with a symphyseotomy than with a Cæsarean section, but it seems to me in this discussion the question is, which is the more scientific and better operation, which presupposes it should be done by a perfectly competent man. I should like to ask Dr. Washburn what his method of controlling hemorrhage was, whether he depended upon an elastic ligature or the fingers of his assistant?

DR. CUMSTON : I must also speak from inexperience, for I have done neither of the operations, but I have assisted at several symphyseotomies. I have never seen Cæsarean section done. There is one thing to be remembered in doing the symphyseotomy which I don't think Dr. Washburn brought out quite emphatically enough, and that is avoiding lacerating the venous plexus of the clitoris which is found just under the symphysis. If that occurs there will be a great deal of trouble. I should almost be more afraid of hemorrhage from that source than of that occurring in the abdominal cavity during a Cæsarean section. By repeating the operation a number of times on the cadaver I came to the conclusion that the Galbati knife was too large an instrument to handle, and when looking about in the shops in Paris to buy a set of knives for resection of the joints, I found that the little curved intraligamentous knife of Ollier would answer all the purposes for easy and safe section of the symphysis pubis.

The choice of operation in emergency seems to have considerable importance. Although I cannot speak positively, I don't think infection after symphyseotomy would be as liable to follow as after Cæsarean section. When I say that, I mean that infection is not so liable to follow after symphyseotomy if the physician has not already bungled with the fetus in the uterine cavity with a number of attempts at high forceps, and possibly produced laceration and rendered the patient septic before he began to do his symphyseotomy.

The bladder has been the source of the trouble in the operations in those cases I have seen. In one of them there was considerable cystitis following. I

¹ See page 613 of the Journal.

² See page 611 of the Journal.

think I have assisted at five cases, and in none of them was there any trouble with the primary union of the symphysis taking place; but in those cases in which the patient is old and where there is a lack of vitality, where we presume that union might not take place as readily as possible, there is no reason why we should not follow the example of Pinard and others and suture with silver wire the symphysis. Of course, it requires an extra instrument, namely, a bone drill to pass the sutures through.

When the passage of the child is prevented by uterine myomata or pelvic tumors, I think we should resort to the Cæsarean operation because we can at the same time treat the cause of dystocia surgically. Osteomalacia, which is such a frequent cause of pelvic deformities, is happily treated by castration, and consequently the abdominal route should, according to my way of thinking, be selected for the delivery of the child when the mother is the subject of this affection, and at the same time the ovaries may be removed.

It is also important that students and physicians should be well versed in pelvimetry; if this were the case fewer unpleasant surprises in the way of difficult labor would occur, because if the patient's pelvis has been measured before labor as it should be in all cases, and found abnormal or contracted, premature labor at the seventh or eighth month is indicated, as has been touched upon by Dr. Englemann.

DR. SWIFT: I should like to ask if any one knows how the age of the patient would affect a symphyseotomy. Suppose we have a primipara of thirty-seven or eight, would there be any difficulty in the separation of the symphysis from an ankylosis of the sacro-iliac joints?

DR. CUMSTON: That has never happened in the cases at which I have assisted. I do not recollect of having read of it. Of course, there are cases in which there has been difficulty in getting the full separation of the pelvic bones, and I think that in some cases they have not been able to obtain the desired result although they have delivered the child. Pinard about a year ago wrote a treatise on the subject, and I don't think he discusses that question to any great extent, but I do recollect of having read reports of cases in which they could not make the separations of the full five or six centimetres that we expect to get.

Recent Literature.

Accident and Injury. Their Relations to Diseases of the Nervous System. By PEARCE BAILEY, A.M., M.D. With 55 illustrations. 8vo, pp. xii, 430. New York: D. Appleton & Co. 1898.

The difficulties in the way of writing a satisfactory treatise on traumatic nervous affections are very great. Injury is set down as one of the causes of almost all the affections of the nervous system; the literature on the so-called traumatic neuroses alone is enormous; the ignorance of the subject is widespread and many erroneous ideas are prevalent; some of the conditions due to injury are really very obscure; so that to discuss the subject fully would require not only the evil

of a large book but almost a complete treatise on nervous and mental disorders. This evil has been avoided in the present volume, which is moderate size, clear, concise, and up to date. In avoiding the evil of too large a book, however, the author has been compelled to make some portions rather inadequate.

This inadequacy is seen especially in the chapter on the examination of the patient, which is compressed into twenty-seven pages. The descriptions are excellent and if the physician were to follow them implicitly he would make a better examination than most of the "experts" make, who testify glibly as to a patient's condition after a superficial examination of twenty or thirty minutes' duration; but a careful and accurate clinical examination is the foundation of our knowledge of disease, and much of the obscurity that surrounds the subject is due to the ignorance which comes from inadequate clinical study. We therefore regret that the author, who recognizes the necessity for the most detailed examination as fully as could be desired, has not forced it upon his readers by devoting a much larger space to it.

The second section treats of the "organic" effects of injury, describing briefly "the symptoms which are to be regarded as indicative of acute organic injury to the brain, the spinal cord and the peripheral nerves." More than one volume has been filled with the consideration of injuries of only one of these organs, but these chapters give an excellent sketch of the subject. The concluding chapter of the section treats of the ultimate organic effects of injury. Epilepsy, paralysis agitans and progressive spinal muscular atrophy he considers may be caused by injury; in tabes and general paralysis the influence of injury is justly regarded as very doubtful. He says nothing of lateral sclerosis and he speaks of multiple sclerosis only in relation to diagnosis later in the book, and then somewhat inadequately. Concerning spinal concussion he is sceptical, but his definition is as obscure as the subject. If the question of concussion be, as he implies, whether direct violence can injure the essential elements of the cord, exclusively, without injury to the vertebræ or without producing hemorrhage—concerning which he expresses grave doubt—he practically admits it when he grants that progressive spinal muscular atrophy may be due to injury.

About half the book is devoted to hysteria and neurasthenia and allied forms of disease. These chapters may be most heartily commended. The author is in accord with modern neurological views, although many of his statements differ from those so often expressed by "experts" and railway attorneys. He gives a clear and full presentation of the clinical aspect of these affections, he has made a thorough study of the literature and his own opinions are sound and conservative. He gives due weight to the physical factor in etiology, somewhat disregarded of late; he estimates the evil effects of litigation certainly as much as they deserve, for he somewhat underestimates the severity of the conditions often seen in non-litigation cases; he gives due weight to the gravity in prognosis,—in neurasthenia it is good "if the patient has no claim to bring and can put himself at once under the care of a skillful physician, although even then recovery is not always assured"; in hysteria it is much less favorable; in the obscurer forms it is bad. Of these latter forms he says, that it seems more advisable simply to record their occurrence "without claiming that they

all have a common pathology, or without insisting too strongly upon what the most probable nature of their pathology is." Simulation he considers rare, and believes that skilful investigation can readily detect it. It is seen most commonly in persons who claim only small amounts, where the claim is too insignificant to warrant thorough investigation, and in this connection he gives an interesting account of the Freemans, who attained considerable skill in feigning various forms of paralysis and made a business of bringing fraudulent claims against corporations. In the chapter on treatment he gives a good *résumé* of the best methods of treating hysteria and neurasthenia, with a wise omission of any advice for the patient to keep at work, now so prevalent in Germany.

One of the most serious omissions is the consideration of the forms of acute mental disease, especially of the confusional type, which sometimes seem to have a distinct relation to injury, and to be of much greater importance in this respect than is general paralysis.

In spite of certain omissions, of a somewhat too great brevity, and of some differences of opinion in regard to minor matters, the book as a whole is thoroughly to be commended. The need of a good treatise upon this obscure and much-discussed subject is very great, for the student has thus far been compelled to search through various treatises and files of journals to obtain an adequate idea of the subject. The present volume fills the need, and it will be indispensable to all who have to do with accident cases, both physicians and lawyers.

Outlines of Rural Hygiene. For Physicians, Students, and Sanitarians. By HARVEY B. BASHORE, M.D., Inspector for the State Board of Health of Pennsylvania. With an Appendix on "The Normal Distribution of Chlorine," by PROF. HERBERT E. SMITH, of Yale University. Illustrated. Pp. vi, 84. The F. A. Davis Co., Philadelphia, New York and Chicago.

Very much that has been published in regard to Public Hygiene is applicable chiefly to densely populated districts to the neglect of those communities which are more sparsely settled. This book is intended to supply the deficiency. The topic of Water-Supply is treated with special reference to the pollution of wells and other sources employed in country districts; the Disposal of Waste-Matters, including excreta, garbage, ashes, etc., occupies the second chapter. The third chapter treats of Soil-Moisture and the Air of the Soil. The author very properly takes the position that the Pettenkofer theory in regard to the relation of the level of the ground-water to the prevalence of typhoid fever is out of date, many extensive epidemics of this disease having occurred in New England in the winter and spring and at times when the ground-water was at a high level. Other chapters treat of the Hygiene of Dwellings, Schools and Other Public Buildings.

The appendix, entitled the "Normal Distribution of Chlorine," consists of an application of the principle, first published in the Report of the State Board of Health of Massachusetts in 1890, to the State of Connecticut. It was found upon observation that the isochlorine lines, published in the former report, could be prolonged in the same manner across Connecticut, thus serving as an important guide in the detection of polluted waters.

THE BOSTON Medical and Surgical Journal.

THURSDAY, JUNE 30, 1898.

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SOLDIERS' FOOD.—CAMP LIFE: ITS BENEFITS AND HARDSHIPS.

It hardly need be said that our soldiers must be furnished with an ample supply of provisions. Experience has shown that to every soldier there should be supplied from 31 to 35½ ounces of dry nutritious food daily, of which 26 ounces are vegetable and the rest animal, the latter consisting of 9 ounces of salt meat or 4½ of fresh. Sugar and coffee should also be liberally supplied. This may be regarded as the minimum ration. Campaigns have proved a failure and battles have been lost from alimentary causes alone. From the nature of the case the rations must be plain, consisting mainly of the necessary food-elements and a minimum of luxuries; the soldier who goes to camp goes, or ought to go, prepared to forego the delicacies of the modern cuisine for hardtack and bacon. Condensed milk may be plenty, but he will not see fresh milk, nor is it often that fresh baker's bread and green vegetables can be furnished. Fresh meat must also be a rarity; fortunately, however, canned meats, vegetables and fruits are not altogether unknown in the camp, though salt pork, bacon, dried fish, hard biscuits, beans and abundance of coffee (experience has proved that coffee is better than tea for soldiers) must be the staple food of the army.

Soldiers very soon become accustomed to such coarse, homely fare, and thrive on it, as all past experience attests, outdoor and tent life and the exercises of the drill, the march, the battlefield being powerful adjuvant influences. It is a kind of life that would benefit many a pale delicate youth in the counting-room or factory, only, Government will take none but the fairly robust, and physicians seldom for obvious reasons recommend army life to their patients. Camp life is a reversion to more primitive modes of living, to the "state of nature"; and if it be true, as some evolutionists contend, that the modern constitution is hardly yet adapted to a civilized mode of life, a return to plainer and more ancient and primitive modes of

living cannot but be advantageous from a sanitary point of view. What has continually been noted is the phenomenal appetites of soldiers; and digestive disturbances in army life are rare except as accompaniments and sequels of the occasional excesses that accompany a campaign; the robustness of soldiers long inured to the camp is proverbial.

It is true that the transition from home life to tent life out of doors is trying, and many soldiers must long miss the fare and the comfortable beds to which they have been accustomed. There is a period when the soldier will sorely feel every privation; and if there is any friction in the working of the commissariat department, he will be in a mood to make bitter complaint. Lately the daily papers have been full of dismal tales of hunger and privation in the military camps, and anxiety has penetrated into thousands of homes. Are our soldiers really ill-fed, or are these harrowing stories canards?

A writer in the *Evening Post* (June 13th) who had for the previous six or seven weeks lived in soldiers' camps and seen more than 10,000 of the regular army and 60,000 volunteers, moving daily from regiment to regiment, noticing the details of life in camp and talking with a countless number of officers and privates, denies *in toto* these reports about the soldiers being poorly fed and ill cared for. He calls them the exaggerated tales of homesick boys. That there has been difficulty in the commissary department of some regiments is quite true. But it is a mistake to judge the whole camp by the misfortunes of a few. The regulations of the commissary department, he says, provide for the daily supply of three and a quarter pounds of rations for every enlisted soldier. The quantity of each of the articles provided is clearly specified, and if for any reason there is shortage of any one item, the weight is made up in some other. The amount of three and a quarter pounds of rations per day per man is fixed from practical experiments regarding the requirements of the average man, and the allowance certainly is liberal. That this quantity is distributed, he affirms from letters presenting the figures, and showing the purchases and receipts of food supplies at Camp Thomas, from which point so many of the wails came. As for the quality of the rations, he says they are the best of their kind; and if they are unpalatable when they reach the soldiers, the fault lies either in the soldier's ideas of what a soldier ought to have, or with a company cook whose knowledge of his business is limited to the art of spoiling wholesome food. As for the variety, the ignorance displayed by some of the men in the ranks is phenomenal. The ideas which some enlisted men have regarding a soldier's life, he thinks, are decidedly paralyzing. Some appear to think that because the government is rich they should be served with fruit, chocolate, toast and marmalade for breakfast, and with a dinner of at least six courses, including nuts and raisins, Roquefort cheese and ice cream.

This writer's remarks are in the main so judicious that we are tempted to copy some extracts from his

letter on "Our Hungry Soldiers," in criticism of numerous fault-finding letters.

Camp is a place for camp-fare. The fare provided is abundant and wholesome, in spite of the whining of some whose absence from the ranks would be an advantage to the army and a benefit to the country. Our regulars live on it, and one would be wholly safe in pitting 5,000 regulars against any 5,000 volunteers, in the matters of physique, endurance, sound health and activity. "But," says some grumbling soldier-boy, "they are used to it." Yes, my son, and you must get used to it. That is a part of your business as a soldier, and you are but half a soldier until you take to bacon, beans and hardtack, very much as you now take to Huyler's candy. Some of these letters tell of having to walk two miles to get wa'er. Wait a bit, my soldier, until you have marched ten or fifteen miles without any. You want to go to Cuba and fight Spaniards. You are eager to go to the front and see active service. Do you imagine that you can leave a line of battle during a hot engagement and walk a few paces to a pump or a faucet and get a drink of iced water at any time when you happen to be thirsty? . . .

Barring the temporary inconvenience caused by occasional congestion in the department, no soldier need go hungry, and few really do. The hospital service tells the real story. Men break down from lack of food and water. I have watched the work of the hospital department of the camps. I have seen no cases in any of them due to starvation or thirst. Nor, I think, has any one else. This applies, not to one but to all our camps. The general conditions in one are the general conditions in all. . . .

How many of these grumbling soldiers know the brigade inspector or the inspector-general when they see either one of them? It is the business of these officers to know all about the food supply of their camps, and to report the condition to their superior officer. Do the grumblers think that the corps commander never sees anything but the officers' mess, which the officers have to pay for out of their own pockets? . . .

It is hard for mothers and wives not to believe literally all that sons and husbands write to them. But it should be remembered that the craving for sympathy is a strongly marked trait in human nature and many a man and boy likes to have his friends at home think that he is doing the hero in very large shape, though he forgets that heroes are not given to complaining, and writes his pitiful tales of hard life in camp without thinking of the pain and the tears with which they will be read.

Those who enlisted in the army expecting a picnic or a pleasant outing will be wofully disappointed. Campaigning means hard work and camp fare. Those who enlisted with any form of principle mingled with their motives will do well to act the soldier and accept the soldier's life with a soldier's grace and fortitude. . . .

With regard to "tropical food," a recent authority says that in Cuba the Spanish have made the mistake of giving the soldier too much bacon and not enough beef. In the tropics the best, the most healthy meat is mutton, and afterwards beef. These two must be the basis of the diet; then add biscuit, potatoes, beans. As to drink, coffee, and only coffee; no alcohol. In the tropics coffee has all the good effects of alcohol and none of its evils — hot coffee, not very strong, with meals and between meals; cold coffee, weak, and without sugar, is the perfect beverage in the tropics. This diet is the result of the experiences of the Spanish military surgeons. The authorities at Washington, according to this writer, err, if anywhere, in too much insisting on the pork régime.

It is not improbable that at times and in places since mobilization began there have been difficulties and some shortcomings in regard to the distribution or transportation of supplies, though the supplies themselves have been provided in generous measure. These difficulties, and possibly some of these shortcomings,

will doubtless recur with active campaigning in foreign countries at a distance from the base of supplies. A perfect commissariat cannot be called into existence for large bodies of men in a few weeks, and this department has proved defective or broken down utterly in most wars, even in the latter half of this century.

But we fear many of our soldiers will yet be called upon to meet experiences compared with which their early weeks of camp life will seem luxurious, and yet being more inured to the changed conditions they will bear these experiences more easily.

MEDICAL NOTES.

THE MEDICAL SCHOOL OF THE UNIVERSITY OF ODESSA, Russia, is to be opened next year.

A DIAGNOSTIC CONUNDRUM. — Mr. Jean de Reszke, the popular tenor, was prevented appearing on the scene last week on account of "neuralgic rheumatism of the liver." — *Medical Press*.

A SECTION ON TROPICAL DISEASES, the first of its kind to be established, will be one of the features of the coming meeting of the British Medical Association, which will meet in Edinburgh, July 26th. The Section will be presided over by Dr. Patrick Manson, the well-known authority on the subject.

THE PLAGUE. — In Karachi, Sind, the disease is rapidly developing and the mortality is very high, 1,183 cases and 992 deaths — a mortality of over 83 per cent. In Calcutta and Bombay the disease is declining. In the latter place there have been to the present time, 29,062 cases and 26,239 deaths — a mortality of 90.2 per cent.

THE PHYSIOLOGICAL LABORATORIES AT UNIVERSITY COLLEGE. — The new physiological laboratories at University College, Liverpool, the magnificent gift to the college of the Rev. S. A. Thompson Yates, will, as we learn from the *Lancet*, be opened on October 8th, Lord Lister performing the opening ceremony. It is stated that the Victoria University will take advantage of Lord Lister's visit to Liverpool to confer upon him the honorary degree of Doctor of Science.

CEREBRO-SPINAL MENINGITIS IN PARIS. — Netter, writes the Paris correspondent of the *Medical News*, called attention, at a recent meeting of the Academy of Medicine, to the existence in Paris of a small epidemic of cerebro-spinal meningitis of which he had seen in a period of two months no less than five fatal cases in the Trousseau Hospital. There were three other fatal cases of tuberculous meningitis in which the meningococcus was associated with the tubercle bacillus. Most of the cases entered the hospital from different parts of the city and the suburbs.

DEATH OF TWO MEDICAL MEN FROM TYPHUS. — Under the head of "Martyrs to Duty," the *British Medical Journal* makes the following statement: "Two medical men have within the past fortnight

fallen victims to typhus in Ireland. The first was Dr. Paul Dillon, of Killarney, a gentleman who was greatly beloved in his district. He had previously been assistant physician to St. Vincent's Hospital in Dublin, and was a very highly-trained practitioner. He was a comparatively young man, having qualified in 1883. He contracted the fever while visiting a poor patient in consultation, and in the same nest two other medical men were also infected, although they have happily recovered. From the North of Ireland the death of Dr. Thomas Sullivan, son of Mr. T. D. Sullivan, M.P., is also announced from the same cause. Here again the disease was the result of a visit to poor dispensary patients, and death resulted in three days."

NEW YORK.

COUNTY MEDICAL ASSOCIATION. — At a meeting of the New York County Medical Association held June 20th, Dr. Robert Abrahams read a paper on "The Trendelenburg Position in Prolapse of the Funis." When this hip-elevated position was introduced into gynecology it occurred to Dr. H. Brothers, of the New York Post-Graduate School, that it would possess decided advantages over the knee-chest position for the treatment of prolapsed funis, and in the last three years he had successfully employed it in five cases, two of which had not as yet been published. Dr. Abrahams himself had used it with complete success in two cases, one of which was now reported for the first time. One of its great advantages was that it was an ideal position for the performance of version, so that the labor could be rapidly terminated if the circumstances of the case required. In private practice the patient could be readily placed in the Trendelenburg position by elevating the hips on the back of an inverted chair. Dr. Louis Leichtschein read a paper on "Hypnotism in Pregnancy and Labor." In pregnancy he said it was chiefly useful in correcting loss of appetite and the depraved desire for eating unnatural substances and in controlling pernicious vomiting. In actual labor the benefit to be derived depended on the susceptibility of the patient to the hypnotic influence. Some women were entirely unsusceptible, but in others the pain of parturition could be very greatly alleviated, or, in case of complete susceptibility, entirely obliterated. In one case, in which it had been previously suggested that the labor would be painless, the patient did not know that she was in labor until the head came down upon the perineum, and the child was born before the arrival of the accoucheur. In favorable cases the frequency and force of the uterine contractions could also be increased or diminished by hypnotism, and altogether he considered it a desirable substitute for the use of anesthetics in women who were susceptible to its influence.

TRAINING SCHOOL FOR NURSES. — The first annual graduating exercises of the training school for nurses connected with the Manhattan State Hospital for the Insane were held at the institution on Ward's Island on June 20th. There were sixty graduates — twenty-

one man and thirty-nine women — who have completed the two years' course. Short addresses were made by Hon. Henry E. Howland, President of the Board of Managers, Dr. A. E. MacDonald, General Superintendent and Bishop Henry C. Potter.

RECREATION PIER.— Another new recreation pier, the first on the Hudson River side of the city, was opened with appropriate ceremonies at the foot of Barrow Street, adjoining the Christopher Street ferry, on June 25th. The pier is 670 feet long by 50 broad, and is fitted up with retiring rooms and modern conveniences, while six male attendants and six matrons are on duty to preserve order and care for the wants of women and children. The lower portion of the pier is leased to the Catskill line of steamers, and the income thus derived will be sufficient to pay for the expense of building and maintenance.

MORTALITY STATISTICS.— During the four weeks ending June 18th there has been a very gratifying reduction of the mortality of the city. In the four weeks preceding the number of deaths reported represented an annual death-rate of 18.62 per thousand of the estimated population, but in these last four weeks the average death-rate was only 16.41. During the week ending June 4th the death-rate reached the lowest point yet recorded in the Greater New York, namely, 15.99. In this "banner" week the Borough of Brooklyn bore off the palm, with a death-rate of 14.78, while that of Manhattan was 15.94, Richmond, 17.68, Queens, 19.56, and Bronx, 23.22. In the week previous, however, the Borough of Richmond "broke the record" with a death-rate of only 10.45. In the week ending June 11th we find that the death-rate in the Borough of the Bronx, which is always comparatively larger on account of the many large institutions located there and which of late has averaged about 25, reached the low figure of 17.51. Comparing the mortality from the various infectious diseases in the four weeks ending June 18th with that in the four weeks preceding, we find that the average number of deaths per week from diphtheria decreased from 35.5 to 29, scarlet fever, 22 to 17, typhoid fever, from 5.5 to 4.5, and pulmonary tuberculosis, 154 to 136. The most marked reduction in the mortality was in pneumonia, in which the average number of deaths per week decreased from 190.5 to 126.

Miscellaneous.

THE HEROISM OF MEDICAL MEN IN THE CUBAN CAMPAIGN.

CLOSE upon the news of the death of Dr. Gibbs at Guantanamo comes the intelligence of the courage of Surgeon Church of the First Volunteer Infantry in calmly bandaging wounds of a fallen soldier under a heavy fire, and then bringing up a litter and removing him to safety. Colonel Wood, the commander of the regiment, was, it will be remembered, a surgeon in

the army, who has earned his title for bravery in leading the regulars against the Indians.

The medical staff of our army already has shown courage equal to that which has distinguished the medical officers of the British Army in India, Africa, and elsewhere, and in spite of which the officers of the line continue to look down upon them as non-combatants.

The *Lancet* of June 18th calls attention to the fact that the Cross of the Legion of Honor has been conferred upon Dr. Abbattucci, a French naval surgeon, "for gallant conduct under circumstances which recall the brave conduct in the New Zealand war of two officers of the Army Medical Department— Surgeon-General Mouat, V. C., and the late Surgeon-General (afterwards Director-General) Mackinnon. The description of Dr. Abbattucci's exploit in the *Journal Officiel* runs as follows: 'In the affair at Diagourou (Soudan) he not only distinguished himself by attending to the wounded under fire, but also took a prominent part in repelling the enemy, with his own hands keeping up a well-directed rifle fire in order to encourage by his example a section of *tirailleurs*, and subsequently doing gunner's duty for an officer of artillery whose men for the most part were *hors de combat*.'"

A NEW ELEMENT IN THE ATMOSPHERE, KRYPTON.

PROF. W. RAMSAY, of University College, London, communicated to the French Academy of Sciences on June 6th, and to the Royal Society on June 9th, an account of the discovery of a new element in the atmosphere. This gas, of which air contains probably not more than 1 part in 10,000 of its volume, was obtained from a volume of 750 c. c. of liquid air supplied to Professor Ramsay, and to Mr. Morris W. Travers, who has been associated with him in this research, by Dr. Hampson. This volume was reduced by evaporation to 10 c. c. This residue was purified from oxygen by metallic copper, and from nitrogen by a mixture of magnesium dust, and lime, followed by sparking with oxygen in presence of caustic soda for five or six hours. There then remained 26 c. c. of a gas which presented, besides the weakly-defined spectrum of argon, an additional spectrum till then unknown. It was characterized by two exceedingly brilliant lines, one being almost identical with D₃. The other, green, may be compared in intensity with the green line of helium. Its wave length was 5566.8. Another, slightly weaker, gave 5557.3. The density of the gas was approximately 22.5, that of oxygen being 16. According to the velocity of sound, the ratio of specific calories is 1,666, the same as that of argon and helium. It therefore follows that the new gas is monatomic and is an element. The position of this new element, which is less volatile than oxygen, nitrogen or argon, in the periodical table has not been determined in an absolute manner, but the conjecture is hazarded that the pure gas has a density of 40 and an atomic weight of 80, and that it may be classed with helium. M. Berthelot, through whom the communication was made to the Academy of Sciences, has examined, in a Plücker tube, a small supply of the new gas sent to him by Professor Ramsay, and has verified the spectroscopic observations. — *British Medical Journal*.

THERAPEUTIC NOTES.

NIGHT-SWEATS OF PHTHISIS.¹—Combemale recommends thallium acetate ($\text{TlC}_2\text{H}_3\text{O}_2$) in the form of pills, one and one-half grains per day, seldom three grains. This dose is to be administered during four days; if possible, one hour before the expected sweating. The effect lasts usually for eight to ten days. As contrasted with other antidirotics, thallium acetate is especially effective in patients with cavities also in cases of bronchiectasis and chronic bronchitis, while it fails to exert any effect at the beginning of tuberculous softening, or at the stage of induration. Too large doses (12 to 16 grains) have been observed to cause falling out of the hair.

ABORTIVE TREATMENT OF ERYSIPELAS.²—For this Dr. Lobit (of Biarritz) recommends application of collodion with iodoform (iodoformed collodion), or, better still, with iodole. The applications are claimed to be efficacious and painless. His formula is: 90 parts of collodion to 10 parts of iodole.

EFFECT OF SERUM IN TETANUS.³—Boinet and Vié (at a recent meeting of the Academy of Medicine, Paris) draw the following conclusions regarding the effect of serum in tetanus, as based on repeated injections on a patient who was cured: (1) A thorough asepsis of the wound is necessary. (2) The excitability of the nervous and muscular systems must be allayed (dark room, chloral, morphine, etc.). (3) In very severe cases the serum therapy must be supplemented by the Bacelli method of treatment, which consists in frequent subcutaneous injections of one-third to two-thirds of a drop of a two-per-cent. carbolic-acid solution.

CITRIC ACID IN THE PROPHYLAXIS OF WHOOPING-COUGH.⁴—Dr. Moncorvo Tilho, of Rio Janeiro, states that the special bacillus of pertussis is destroyed in its chosen home, the larynx, by swabbing the periglottic region with a ten-per-cent solution of citric acid in simple syrup. It also constitutes an efficient prophylaxis against infection. He succeeded in preventing the disease in many children, living with others infected, by this means, or merely by the administration of small quantities of citric lemonade during the day. He considers resorcin and asapral the most effective of other remedies.

A CASE OF OPIUM POISONING TREATED SUCCESSFULLY WITH POTASSIUM PERMANGANATE.—The patient, according to the statement of his wife, drank about a half-ounce of the simple tincture, and when brought to the hospital was in a deeply comatose condition, with all reflexes abolished, with the characteristic pin-hole pupil, severe cyanosis and superficial breathing; but the pulse was full, strong, and 80 per minute, and the urine free from albumin and sugar. Several hours after he had been brought to the hospital (as the cause of poisoning was not known before) the patient received an injection of one and one-half grains of potassium permanganate. During the first half-hour there was no change in his condition, but by the next half-hour the patient awoke from his deep coma, the pupils dilated, the reflexes returned, and

became normal. In a few days, during normal variations of temperature were observed, the patient was entirely cured. The reporter,⁵ Dr. Rindfleisch, of Königsberg, considers the action of the potassium permanganate as of a purely chemical nature. When potassium permanganate is mixed with a solution of morphine a precipitate of peroxide of manganese is formed, while the union of morphine with the remaining oxygen of the potassium permanganate forms a non-poisonous compound of morphine and oxygen. He recommends the administration, in cases of opium poisoning, of three to six grains of the permanganate in water per os; or, if the administration per os be impracticable, then an injection of a two-to-five-per-cent. solution.

Obituary.

DR. JOSEPH STEDMAN.

RESOLUTIONS OF THE OBSTETRICAL SOCIETY OF BOSTON, MAY 17, 1898.

THE name of Dr. Joseph Stedman has been removed by death from the roll of the Obstetrical Society, and the members wish to express, and to enter on their records, their grateful appreciation of his character and his friendship.

They recall with pleasure the strength and manliness of his character, his integrity as a trusted member of the community, his devotion to and standing in the profession of medicine, to which he had devoted his life. They remember his hearty warmth of friendship and the eager grasp of the hand as he met one both within and without our Society. With such characteristics a good man has left us, and the members of the Obstetrical Society, missing the presence which was so treasured by them, offer this tribute to his memory.

A. D. SINCLAIR,
F. H. DAVENPORT, } Committee.
FRANCIS H. BROWN, }

Correspondence.

[Special Correspondence.]

LETTER FROM BERLIN.

KOCH'S MEDICAL OBSERVATIONS IN THE TROPICS.

BERLIN, June 10, 1898.

MR. EDITOR:—Yesterday evening Prof. Robert Koch, the distinguished bacteriologist, spoke by invitation of the German Colonial Society before an audience that contained many of the distinguished medical men of Germany on "My Medical Observations in the Tropics." Two subjects were mainly treated: Texas Fever, with Professor Koch's substantiation of Prof. Theobald Smith's (Texas) work on that subject; and Malaria, especially the form of that disease which occurs in the tropics. Only a passing reference was made to his study of the rinderpest, the disease which he was sent to German East Africa by the German Imperial government to study. He has not been able to isolate the parasite of the disease, though he has made some most encouraging observations as to the possibility of the serum immunization of the disease.

In Texas fever, which Koch found endemic in German East Africa, he repeated Professor Smith's observations.

⁵ Münch. med. Woch., May 10, 1898.¹ Münch. med. Woch., No. 10, 1898.² Lyon Médical, March 15, 1898.³ Münch. med. Woch., No. 20, 1898.⁴ The Therapist, May 14, 1898.

He found the *Pyrosoma* (*Apiosoma*) bigeminum, the double pear-shaped animal parasite that Smith has described. He was able also to confirm the opinion that the disease is conveyed by certain tick-like parasites that infect the animals. His most important observation in this regard was the substantiation of the fact of the conveyance of the disease by young ticks that had been carefully raised away from all infectious influences, except, of course, that acquired by heredity from insect progenitors who had lived on infected animals. A young brood of ticks sent to a distance where no Texas fever had ever been known produced the disease in a herd of animals under these circumstances in twenty-two days. The time before the development of the symptoms was so long that Koch had about given up hope as to the success of his experiments. He considers the observations to have been made under such precautions that any possible source of infection except that through the hereditary infectiveness of the ticks was excluded. This confirmation of the acute American observer's work was received with every sign of interest.

As to malaria, Professor Koch considers that its communication probably involves some such mediate process as that of Texas fever, with the mosquito as the intermediate host. A direct transportation of the contagion from one person to another by the insects is not so probable as the occurrence of a cycle of changes in the mosquito itself that may take more than one generation for their completion. In Africa Koch's party found that mosquito nets formed a most efficient protection against malaria, that the disease exists only on the coast and at the foot of the mountains, where the mosquitoes are plenty, and not on the mountains, where they are absent. On one of the islands where there were no mosquitoes there was no malaria, though islands usually suffer more from the disease.

The forms of malaria he found in East Africa differ from those of temperate climates a good deal. He considers them a group of animal parasitic diseases rather than forms of the same disease. Only 10 per cent. of the malaria of the tropics runs the course of our tertian or quotidian fever. The remaining 90 per cent. consists of three principal forms, distinguished by the length of the intervals between the paroxysms. In the true tropical forms Koch found that the high temperature of the fever stage persisted for thirty-six hours when the disease was allowed to run the course without quinine. That is, the temperature curve ran up abruptly, and then maintained its acme not for four to six hours, as in the malaria of Europe, but for thirty-six hours, and only then descended abruptly.

Untreated in rugged constitutions he found that tropical malaria was self-limited. Successive attacks of the disease were milder until immunity was acquired. He never saw a remittent form of pure malaria, that is, a febrile temperature persisting between the paroxysms; and he thinks it due always to complications, for every disease accompanied by fever, if at all obscure, is set down in the tropics to be malaria. The malaria hematuria, which is so much dreaded and for which a bad prognosis is almost invariably given, he considers due to quinine poisoning. He never saw it in a case where quinine had not been given, and thinks he has good reason to be positive about it, as he is, that it is not of malarial but quinine origin.

The hematoozon of tropical malaria differs considerably from that of ordinary malaria, and is especially distinguished by being smaller in most of its stages than the parasite that we know through the studies of Italian observers. Just after the paroxysm there is, for instance, a signet-ring form, the side opposite the signet being thickened, crescentic in shape, that recalls the post-paroxysmal signet-ring form of ordinary tertian fever, but it is not half so large. The so-called spores set loose when the rosette form of the parasite breaks up are in tropical malaria not more than one-third the size of those of the ordinary parasite. Koch has never seen them in the blood at this stage, but has found them in the spleen. They are, of course, not spores, and especially have not the vital resistance of true

spore forms. They are young plasmodia in reality, and are extremely sensitive to external agents. Their appearance is the signal to give quinine, as it is at this time that quinine influences the disease. Entirely too much of the drug is given in the tropics, and given most unadvisedly. Koch found that one gramme a day (15½ grains) was plenty to secure absolute prophylaxis, and that not much more need be given to patients, even in severe cases. The time for its administration must, however, be judged by the microscope, so that the drug has the chance to exert its microbicidal action on the young delicate organisms.

The therapy of malaria, however, that will make the colonization of the immense continent of South Africa possible by Europeans, must come from immunization. His observations as to the self-limited, ultimately immunizing character of the disease make him feel sure that immunity may be produced. This may be possible even though we should learn no more of the life history of the parasite than we know at present. In rinderpest, for instance, he found it possible to produce immunity without knowing the parasite. In rabies we know absolutely nothing of the microbic cause of the disease yet are successful in its therapy.¹ The battle with malaria along these lines promises much more for humanity and science than all polar explorations, though governments take so much interest in them.² Koch's lecture was listened to with the greatest attention, though in a thickly crowded, intensely hot room, and the comments of distinguished German medical men showed that it was considered eminently worthy of the thoroughly practical character of the man, and a most interesting excursion on his part into a new field.

THE BOSTON FLOATING HOSPITAL.

BOSTON, June 28, 1898.

MR. EDITOR:—The Board of Managers of the Boston Floating Hospital wish to announce to the medical profession the organization and the plans of the Hospital for the summer of 1898.

The visiting staff consists of Drs. Samuel Breck, F. Coggeshall, R. W. Hastings, W. E. Fay and E. B. Young.

The boat has been equipped as a permanent hospital, with 39 cots under cover on the lower deck, and complete arrangements for heating that part of the boat which will be used at night.

Arrangements have been made to have one of the house-officers and nurses on board all the time, and for accommodation of the mothers who wish to stay on the boat with their children.

Trips will be made down the harbor daily (weather permitting) except on Sunday, from July 1st to August 31st inclusive.

The boat will start from the south side of Commercial Wharf at 9 A. M., and returning will land day patients at the same place at 4 P. M. Throughout the rest of the twenty-four hours, and on Sunday, it will be moored at the wharf of L. Pickert & Co., near the North Ferry, East Boston. Day patients will be received for the trips between 8 and 9 A. M. Permanent patients will be received at any hour when the boat is at either Commercial Wharf or at Pickert's Wharf, East Boston.

The age of patients is limited to six years.

It is particularly requested that care be taken not to recommend any children that are even suspected to be suffering from any contagious disease, as such cases are rigidly excluded.

A new feature of this season's work will be a systematic attempt to instruct the mothers by explanations and practical demonstrations in the simplest and cheapest effectual methods of preparing and sterilizing infants' food, and in the feeding and general hygiene of children.

Yours very truly, SAMUEL BRECK, M.D.

¹ This is Koch's first public admission of the value of Pasteur's treatment of rabies.

² Another German North Polar expedition had just sailed.

METEOROLOGICAL RECORD

For the week ending June 18th, in Boston, according to observations furnished by Sergeant J. W. Smith, of the United States Signal Corps:—

Date.	Baro-	Ther-		Relative			Direction		Velocity		We'th'r.		Rainfall in inches.
	meter.	Daily mean.	Maximum.	Minimum.	8.00 A. M.	8.00 P. M.	Daily mean.	8.00 A. M.	8.00 P. M.	8.00 A. M.	8.00 P. M.	8.00 A. M.	
S...12	29.85	74	87	61	78	64	71	W.	W.	10	10	F.	F.
M...13	29.96	61	66	56	97	95	96	N.	E.	6	8	O.	O.
T...14	29.80	68	79	58	91	73	74	E.	W.	3	15	O.	F.
W...15	30.12	64	71	56	65	42	60	N.	N.W.	24	5	C.	C.
T...16	30.28	60	71	50	58	65	62	N.W.	S.W.	4	12	C.	O.
F...17	30.10	67	78	56	61	55	58	N.W.	S.W.	4	12	C.	C.
S...18	30.02	68	78	58	67	61	63	W.	S.	5	14	C.	O.

* O, cloudy; C, clear; F, fair; G, fog; H, hazy; S, smoky; R, rain; T, threatening; N., snow. † Indicates trace of rainfall. — Mean for week.

RECORD OF MORTALITY

FOR THE WEEK ENDING SATURDAY, JUNE 18, 1898.

CITIES	Estimated population.	Reported deaths in each.	Deaths under five years.	Percentage of deaths from				
				Infectious diseases.	Acute lung diseases.	Diarrheal diseases.	Diphtheria and croup.	Measles.
New York	3,438,899	1134	399	10.24	11.92	2.88	2.48	1.76
Chicago	1,619,226	—	—	—	—	—	—	—
Philadelphia	1,214,255	499	186	15.80	5.20	9.40	1.80	1.60
St. Louis	570,000	148	39	4.69	4.69	1.34	—	1.34
Baltimore	550,000	173	79	11.40	7.98	2.28	3.42	2.28
Boston	517,732	174	52	6.84	11.97	1.14	1.14	.57
Cincinnati	405,000	90	—	5.55	8.88	2.22	—	1.11
Cleveland	360,000	—	—	—	—	—	—	—
Pittsburg	285,000	103	59	34.30	5.88	27.44	—	.86
Washington	277,000	120	53	29.75	2.55	14.45	.85	.85
Milwaukee	275,000	—	—	—	—	—	—	—
Providence	150,000	46	18	12.02	8.88	10.5	—	—
Worcester	105,050	31	9	6.46	6.46	—	3.23	—
Fall River	95,919	28	17	21.42	3.57	21.42	—	—
Nashville	87,784	25	10	32.00	8.00	24.00	—	—
Lowell	87,193	34	12	11.76	5.88	5.88	—	—
Cambridge	86,812	18	3	11.11	—	—	—	—
Lynn	65,220	15	6	6.66	—	—	—	—
Charleston	65,165	25	6	16.00	4.00	16.00	—	—
New Bedford	62,416	16	6	—	6.25	—	—	—
Somerville	57,977	12	1	8.33	—	—	—	—
Lawrence	55,510	14	4	—	7.14	—	—	—
Springfield	54,790	20	2	15.00	—	5.00	—	—
Holyoke	42,364	13	4	23.07	7.69	15.38	—	—
Salem	36,062	10	2	—	20.00	—	—	—
Brockton	35,853	—	—	—	—	—	—	—
Malden	32,894	9	3	44.44	11.11	—	—	—
Chelsea	32,716	4	0	—	25.00	—	—	—
Haverhill	31,406	6	3	16.66	33.33	16.66	—	—
Gloucester	29,775	—	—	—	—	—	—	—
Newton	26,990	—	—	—	—	—	—	—
Fitchburg	28,392	8	1	—	—	—	—	—
Taunton	27,812	11	4	9.09	9.09	9.09	—	—
Quincy	22,562	4	1	—	—	—	—	—
Pittsfield	21,891	—	—	—	—	—	—	—
Waltham	21,812	3	1	—	—	—	—	—
Everett	21,575	5	0	—	60.00	—	—	—
North Adams	19,135	5	1	—	—	—	—	—
Northampton	17,448	—	—	—	—	—	—	—
Chicopee	17,368	9	5	—	—	—	—	—
Brookline	16,164	—	—	—	—	—	—	—
Medford	15,832	3	1	—	—	—	—	—

Deaths reported 2,836: under five years of age 1,011; principal infectious diseases (small-pox, measles, diphtheria and croup, cerebro-spinal meningitis, diarrheal diseases, whooping-cough, erysipelas and fevers) 367, consumption 326, acute lung diseases 259, diarrheal diseases 166, diphtheria and croup 50, measles 40, cerebro-spinal meningitis 28, scarlet fever 26, whooping-cough 26, typhoid fever 26, erysipelas 5.

From cerebro-spinal meningitis New York 7, Washington 6, Malden 3, Baltimore and Boston 2 each, Philadelphia, Nashville,

Worcester, Lowell, Cambridge, Lynn, Holyoke and Clinton 1 each. From scarlet fever New York 17, Philadelphia and Washington 2 each, St. Louis, Cincinnati and Pittsburg 1 each. From whooping-cough New York 10, Philadelphia and Pittsburgh 1 each. From typhoid fever Philadelphia 7, Washington 6, St. Louis, Baltimore and Boston 2 each, Cincinnati, Pittsburg, Lowell, Somerville and Malden 1 each. From erysipelas New York 3, Philadelphia and Washington 1 each.

In the thirty-three greater towns of England and Wales, with an estimated population of 11,218,378, for the week ending June 11th, the death-rate was 16.9. Deaths reported 3,643; acute diseases of the respiratory organs (London) 212, measles 131, whooping-cough 103, diarrhea 57, diphtheria 42, scarlet fever 27, fever 20.

The death-rates ranged from 8.4 in Croydon to 24.1 in Newcastle-on-Tyne; Birmingham 17.2, Bradford 16.3, Cardiff 12.3, Huddersfield 14.3, Leeds 17.4, Leicester 19.7, Liverpool 20.4, London 16.3, Manchester 20.3, Nottingham 13.6, Portsmouth 16.8, Sheffield 18.4, West Ham 12.6.

OFFICIAL LIST OF CHANGES IN THE STATIONS AND DUTIES OF OFFICERS SERVING IN THE MEDICAL DEPARTMENT, U. S. ARMY, FROM JUNE 18, 1898, TO JUNE 24, 1898.

A board of officers to consist of COLONEL CHARLES C. BYRNE, assistant surgeon-general, MAJOR JAMES P. KIMBALL, surgeon, and MAJOR JOHN D. HALL, surgeon, is appointed to meet at Governors Island, New York City, for the examination of each officers of the medical department as may be ordered before it to determine their fitness for promotion.

CAPTAIN WILLIAM C. GORGAS, assistant surgeon, ordered to report to the president of the examining board, New York City, for examination for promotion.

CAPTAIN JEFFERSON R. KEAN, assistant surgeon, U. S. A., ordered to Jacksonville, Fla., to report to MAJOR-GENERAL FITZHUGH LEE, U. S. V., commanding 7th Army Corps, for duty.

CAPTAIN PETER R. EGAN, assistant surgeon, U. S. A., ordered to Tampa, Fla., to report to MAJOR-GENERAL JOHN J. CORPINE, U. S. V., commanding 4th Army Corps.

CAPTAIN HENRY R. STILES, assistant surgeon, U. S. A., having reported in person to the Surgeon-General of the Army, will report in person to MAJOR CHARLES RICHARD, surgeon, in charge of hospital trains, for duty.

CAPTAIN JOHN S. KULP, assistant surgeon, U. S. A., ordered to Camp George H. Thomas, Chickamauga National Park, Ga., and will report to MAJOR-GENERAL JAMES F. WADE, U. S. V., commanding 3d Army Corps, for duty.

MAJOR CHARLES RICHARD, surgeon, U. S. A., having reported in person to the Surgeon-General of the Army, is assigned to duty in charge of the hospital train.

MAJOR JUNIUS L. POWELL, surgeon, will proceed from Fort Riley, Kan., to Mobile, Ala., and report in person to BRIGADIER-GENERAL WILLIAM C. OATES, U. S. V., 4th Army Corps, for duty as chief surgeon on his staff.

Acting Assistant Surgeon WYLLIE G. WOODRUFF, U. S. A., will proceed from Lawrence to Fort Riley, Kan., and report in person to the commanding officer of that post for duty.

Acting Assistant Surgeon JOHN R. DEVEREUX, U. S. A., will proceed from this city to Chickamauga, Ga., and report to MAJOR E. C. CARTER, brigade surgeon, U. S. V., in charge of Leiter General Hospital, for duty.

RECENT DEATHS.

GEORGE MELVILLE FROST, M.D., M.M.S.S., died in Peabody, June 20, 1898, aged fifty-five years.

EBEN JACKSON, M.D., M.M.S.S., died in Somerville, June 22, 1898, aged seventy-three years.

BOOKS AND PAMPHLETS RECEIVED.

The Arid Atmosphere of our Houses in Winter. By Dr. Henry J. Barnes, Boston, Mass. Reprint. 1898.

Injuries from "Live" Electric Light and Trolley Wires. By J. J. Brownson, M.D., Dubuque, Io. Reprint. 1898.

Mutual Relations of the Railway Surgeon and the Neurologist. By J. T. Eskridge, M.D., Denver, Col. Reprint. 1898.

Transactions of the Massachusetts Medico-Legal Society, Volume II, No. 8, 1898. Boston: Published by the Society. 1898.

Experiments on the Application of the Roentgen Rays to the Study of Anatomy. By Ernest Amory Codman, M.D., Boston. Reprint. 1898.

Brookline Public Bath. Report of the Committee on Care and Management, with an Appendix containing a Description of the Building, Illustrations, Schedule of Hours, etc. 1898.

16 July 12. 1896 *Sub* THE BOSTON 5746.1

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THE PATHOLOGY, GENESIS AND DEVELOPMENT OF SOME OF THE MORE IMPORTANT SYMPTOMS IN TRAUMATIC HYSTERIA AND NEURASTHENIA. By Morton Prince, M.D., Physician for Diseases of the Nervous System, Boston City Hospital; Clinical Instructor in Diseases of the Nervous System, Harvard Medical School. (Continued.).....		536	RECENT LITERATURE.			Boston and New England.		
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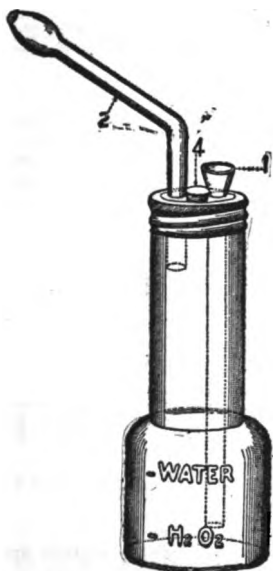
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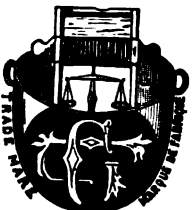
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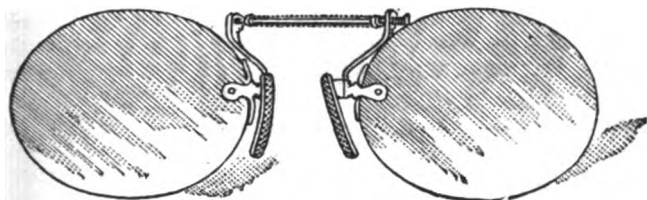
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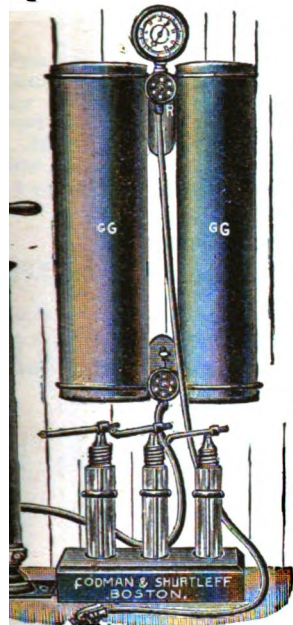
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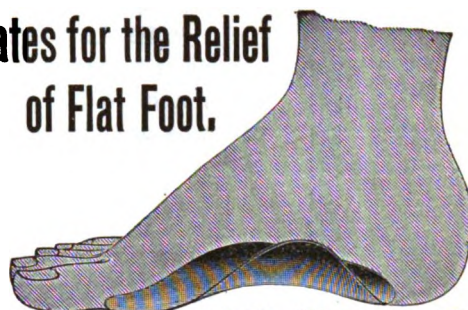
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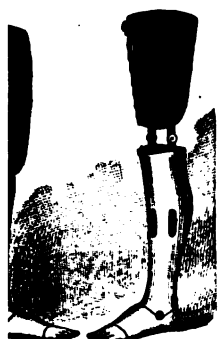
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No.	Subject.	Instructor.	Place.	No. of Exercises.	Begins.	Ends.	Days.	Hour.	Fee.
1	Histology and Microscopy ^{1 10}	Dr. Ames	Medical School	18	July 11	Aug. 12	Mo. We. Fr.	3	\$20.00
2	Pathological Technique ^{1 12}	Dr. Mallory	City Hospital	42	June 28	Aug. 13	Daily	3	50.00
3	Pathological Anatomy ¹	Dr. Taylor	Medical School	13	July 1	July 29	Mo. We. Fr.	3	25.00
4	Clinical Hematology ^{1 2}	Dr. Morse	City Hospital	10	July	Aug.		3.30	25.00
5	Clinical Hematology ²	Dr. Hewes	Medical School	14	July 1	July 16	Daily		15.00
6	Bacteriology	Dr. Stone	Medical School	35	Aug. 16	Sept. 24	Daily	3.30	30.00
7	Bacteriology ^{15 20}	Dr. Darling	Medical School	35	July 5	Aug. 13	Daily	3.30	30.00
8	Chemistry ^{5 6}	Dr. Hills	Medical School	25	June 27	July 29	Daily	10	30.00
9	Clinical Chemistry ^{6 7}	Dr. Ogden	Medical School	30	June 30	Aug. 4	Daily	1	30.00
10	Practical Pharmacy ^{7 10}	Dr. Harrington and Mr. Jordan	Medical School	12	July 1	July 21	Mo. We. Fr.	4	25.00
11	Practical Pharmacy ^{7 10}		Medical School	12	Aug. 1	Aug. 26	Mo. We. Fr.	4	25.00
12	Diseases of the Digestive Organs ¹	Dr. Cutler	Mass. General Hosp.	12	June 1	June 29	Tu. Fr.	11	25.00
13	Chemistry of Gastric Diseases ²	Dr. Hewes	Medical School	18	July 18	Aug. 8	Daily		20.00
14	Clinical Medicine	Dr. Gannett	Mass. General Hosp.	20	July 1	Aug. 15	Mo. We. Fr.	9	20.00
15	Clinical Medicine	Dr. Vickery	Mass. General Hosp.	13	July 5	Aug. 12	Mo. We. Fr.	10	15.00
16	Clinical Medicine ¹	Dr. Jackson	City Hospital	20	July 1	Aug. 15	Mo. We. Fr.	10	20.00
17	Clinical Medicine ¹⁰	Dr. Sears	City Hospital	13	Aug. 2	Aug. 30	Tu. Th. Sat.	10.30	20.00
18	Clinical Medicine ¹	Dr. Stone	Mass. General Hosp.	16	Aug. 10	Sept. 30	We. Fr.	11	15.00
19	Clinical and Operative Surgery	Dr. Mixer	Mass. General Hosp.	24	June 3	July 27	Mo. We. Fr.	11	25.00
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21	Clinical and Operative Surgery ¹	Dr. Couant	Carney Hospital	20	July 1	Aug. 15	Mo. We. Fr.	10	25.00
22	Clinical and Operative Surgery ¹	Dr. Couant	Carney Hospital	20	Aug. 17	Sept. 30	Mo. We. Fr.	10	25.00
23	Clinical and Operative Surgery ¹⁴	Dr. Lovett	City Hospital	15	Aug. 15	Sept. 16	Mo. We. Fr.	10	20.00
24	Surgery of Children ¹	Dr. Lovett	Children's Hospital	10	Aug. 16	Sept. 17	Tu. Sat.	10	15.00
25	Minor Surgery	Dr. Brooks	Mass. General Hosp.	13	July 1	July 29	Mo. We. Fr.	10	20.00
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38	Operative Obstetrics ^{15 1}	Dr. Newell	Medical School	8	July	July		4	20.00
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42	Diseases of the Ear ¹⁵	Dr. C. J. Blake	Eye and Ear Inf.	26	June 2	July 30	Tu. Th. Sat.	10	25.00
43	Diseases of the Ear ^{1 7}	Dr. Crockett	Eye and Ear Inf.	25	July 1	July 29	Daily	9	25.00
44	Diseases of the Ear ^{1 7}	Dr. Crockett	Eye and Ear Inf.	27	Aug. 1	Aug. 31	Daily	9	25.00
45	Anatomy of the Ear ^{2 15}	Dr. Hammond	Medical School	24	June	Sept.			25.00
46	Diseases of the Ear ²	Dr. Hammond	Eye and Ear Inf.	25					25.00
47	Diseases of the Eye ¹	Dr. Cheney	Eye and Ear Inf.	21	June 13	July 29	Tu. Th. Sat.	9	20.00
48	Diseases of the Eye ¹	Dr. Jack	Eye and Ear Inf.	21	June 13	July 29	Mo. We. Fr.	9	20.00
49	Diseases of the Nose and Throat	Dr. Farlow	City Hospital	12	June 3	June 29	Mo. We. Fr.	10	20.00
50	Diseases of the Mind ^{2 10}	Dr. Fisher	Medical School	12	July	July			20.00
51	Diseases of the Nervous System.	Dr. Walton	Mass. General Hosp.	13	Sept. 1	Sept. 29	Tu. Th. Sat.	1	20.00
52	Diseases of the Nervous System ^{2 8}	Dr. Taylor	Medical School	19	July 2	Aug. 13	Tu. Th. Sat.		25.00
53	Diseases of the Nervous System ¹	Dr. Taylor	Medical School	20	July 1	Aug. 15	Mo. We. Fr.		25.00
54	Diseases of the Skin	Dr. Bowen	Mass. General Hosp.	13	July 1	July 29	Tu. Th. Fr.	9.30	15.00
55	Diseases of the Skin	Dr. Bowen	Mass. General Hosp.	14	Sept. 1	Sept. 30	Tu. Th. Fr.	9.30	15.00
56	Hygiene ¹⁷	Dr. Harrington	Medical School	36	July 1	Aug. 11	Daily	3	30.00
57	Municipal Sanitation ¹⁷	Dr. Durgin	Medical School	13	July 1	July 29	Mo. We. Fr.	3	20.00
58	Anatomy ²¹	Dr. Thomas Dwight	Medical School	15	July 11	July 29	Daily except Sat	12.15	20.00
59	Orthopedic Surgery	Dr. Bradford	Children's Hospital	17	July 6	Aug. 31	Mo. We.	4	20.00

¹ Class membership limited.² Details relating to time to be arranged later.³ A satisfactory examination passed at the end of this course will be accepted in place of the entrance examination in Chemistry.⁴ A deposit of five dollars will be required to meet charges for supplies and broken apparatus.⁵ Each exercise is of two hours' duration.⁶ And at Long Island Hospital.⁷ A course will be of six weeks' duration, and the class may be joined at any time before June 23.⁸ A course will be of six weeks' duration, and the class may be joined at any time before August 25.⁹ A course will be of seven weeks' duration.¹⁰ Includes practice in mastoid and middle-ear operations on the cadaver.¹¹ To a class of not less than two students.¹² To a class of not less than three students.¹³ To a class of not less than four students.¹⁴ To a class of not less than five students.¹⁵ A small charge will be made for laboratory materials.¹⁶ Of the Nervous System only.¹⁷ Introductory exercises on the Anatomy of the Central Nervous System.¹⁸ To a class of not less than six students.¹⁹ To a class of not less than ten students.²⁰ A charge of three dollars will be made for use of a microscope.²¹ Topographical and Applied Anatomy of the head and trunk; for men only.

For further information address the secretary, Dr. C. M. Green, Harvard Medical School, 688 Boylston Street, Boston, Mass. Students will register their names at the Dean's office, and pay the fees in advance for the several courses taken. As some of the classes are necessarily limited in number, students will be received in the order of their application.

Certificates of attendance will be given to students who may desire them.

